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EXPANDING THE SEARCH: AN INSTITUTIONAL ANALYSIS OF A PUBLIC-PRIVATE PARTNERSHIP IN CANADIAN SEARCH AND RESCUE

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Master of Defence Studies

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By/par Lieutenant-Colonel Lauri Darras

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LIST OF ABBREVIATIONS

ADF	Australian Defence Force
ADM (RS)	Assistant Deputy Minister (Review Services)
AMSA	Australian Maritime Safety Authority
AOR	Area of Responsibility
ARCC	Aviation Rescue Co-ordination Centre
ASD	Alternate Service Delivery
ASD	Alternative service delivery
CAA	Civil Aviation Authority
CAF	Canadian Armed Forces
CARs	Civil Aviation Regulations
CASA	Civil Aviation Safety Authority
CASARA	Civil Air Search and Rescue Association
CCG	Canadian Coast Guard
CFB	Canadian Forces Base
CHC	Canadian Holdings Company
CHCI	Canadian Holdings Corporation Ireland
CMLU	Cormorant Mid-Life Upgrade
DAOD	Defence Administrative Orders and Directives
DFO	Department of Fisheries and Oceans
DND	Department of National Defence
DoT	Department of Transport
FOM	Flight Operations Manual
FSP	Flight Safety Program
HMCG	Her Majesty's Coast Guard

IAA	Irish Aviation Authority
IAMSAR	International Aeronautical and Maritime Search and Rescue Manual
ICAO	International Civil Aviation Organization
IMO	International Maritime Organization
IRCG	The Irish Coast Guard
JRCC	Joint Rescue Coordination Centres
MRCC	Marine Rescue Co-ordination Centre
NAWSARH	Norway's All-Weather SAR Helicopter
NSP	National Search and Rescue Program
NVIS	Night Vision Imaging System
QR&O	Queen's Regulations and Orders
RAAF	Royal Australian Air Force
RCMP	Royal Canadian Mounted Police
SAR	Search and Rescue
SAR	Techs SAR Technicians
SETs	Standards and Evaluation Teams
SOPs	Standard Operating Procedures
SRD	Safety Regulation Division
SRR	SAR Regions of Responsibility
TAA	Technical Airworthiness Authority
TC	Transport Canada
UK	United Kingdom

ABSTRACT

The Standing Senate Committee on Fisheries and Oceans undertook a comprehensive study on Canadian maritime search and rescue, releasing its report entitled “When Every Minute Counts” in November 2018. The Senate Committee recommends an alternate service delivery where the Department of National Defence would contract a civilian helicopter operator to supplement the Canadian Armed Forces aeronautical delivery of maritime search and rescue in areas with insufficient coverage. Both the Canadian public and the Canadian Armed Forces search and rescue community challenge whether a contracted civil operator can deliver search and rescue services in a manner and at a level that are consistent with the services provided by the Canadian Armed Forces. It is thus questioned if the Senate Committee’s recommended course of action is an acceptable, credible and legitimate option. With the aim of resolving this uncertainty, this study conducts an institutional analysis of the public-private partnership model proposed by the Senate Committee, and shows that, with the careful application of simple recommendations, the hybrid model can be a legitimate option for the aeronautical delivery of maritime search and rescue.

INTRODUCTION

In May 2016, the Standing Senate Committee on Fisheries and Oceans undertook a comprehensive study on Canadian maritime search and rescue (SAR) services. After 18 months of research that included literature review, public hearings with expert witnesses and site visits throughout Canada and abroad, the Senate Committee released its report on maritime SAR, entitled “When Every Minute Counts.”¹ The report identifies challenges to the overall delivery of maritime SAR in Canada, discloses concerns, and exposes risks to the future effectiveness of Canadian domestic SAR. It also provides a comprehensive list of recommendations for improvement to the delivery of maritime SAR in Canada. The Committee believes that a public-private partnership in aeronautical delivery of maritime SAR would offer “an innovative and cost-effective solution to supplement SAR resources in regions with little or insufficient coverage.”² Specifically, the Committee recommends an alternate service delivery (ASD) where the Department of National Defence would “authorize a civilian helicopter operator to provide aeronautical search and rescue coverage in the Canadian Arctic and in Newfoundland and Labrador” as a dedicated resource supporting the National Search and Rescue Program (NSP).³

Canada’s NSP is a collaborative effort by federal, provincial and municipal governments, with the assistance of a number of volunteer SAR organizations. The NSP includes three components: Aeronautical SAR, Maritime SAR, and Ground SAR. Aeronautical SAR and Maritime SAR are the mandates of the federal government, whereas provincial or territorial governments are responsible for Ground SAR. Primary

¹ Canada, Senate of Canada, “When Every Minute Counts: Maritime Search and Rescue,” Report of the Standing Committee on Fisheries and Oceans. (2018).

² Canada, Senate of Canada, “When Every Minute Counts...,” 27.

³ *Ibid.*, iv.

responsibility for Aeronautical SAR, which involves aircraft incidents, is assigned to the CAF, whereas the provision of Maritime SAR is the mandate of the Department of Fisheries and Oceans (DFO) and the Canadian Coast Guard (CCG). Although the DFO and CCG are primarily responsible for the provision of maritime SAR, the Department of National Defence (DND) has overall responsibility for aeronautical and maritime operational SAR matters. Maritime SAR operations are jointly coordinated by the CAF and the CCG at the three Joint Rescue Coordination Centres (JRCCs), and the CAF provides primary and secondary SAR assets in support of the maritime SAR mandate.⁴

The Senate Committee's report describes several concerns with respect to the CAF's contribution to maritime SAR.⁵ First, the CAF's two-tier reaction time was highlighted as a concern.⁶ While a 30 minute reaction time is adopted to match peak hours for maritime incidents, it is not possible to maintain this level of readiness indefinitely. Limited by the number of personnel and aircraft, the CAF maintains a 30 minute reaction time for 40 hours per week, and a two-hour reaction time for the remainder. Although the International Convention for the Safety of Life at Sea, to which Canada is a signatory, does not decree a maximum reaction time, Canada is not on par with many of its western counterparts who maintain a 15 minute reaction time during the

⁴ For more information on Canada's Joint Rescue Coordination Centres, see: National Defence and Fisheries and Oceans Canada, *CAMSAR, Canadian Aeronautical and Maritime Search and Rescue Manual, Combined Edition – Volumes I, II, and III, Supplement to the IAMSAR Manual, B-GA-209-001/FP01*, effective date 30 September 2014, CAMSAR I.

⁵ Canada, Senate of Canada, "When Every Minute Counts...", 23-25.

⁶ Reaction time is defined as: "the difference in time between when a SAR resource is tasked and when the resource departs for the tasking." Canadian Coast Guard Safety and Environmental Response Systems 2001 Maritime Search and Rescue Incidents Annual Report <http://www.dfo-mpo.gc.ca/Library/343485-2001.pdf>

day and thirty to forty-five minute reaction time at night.⁷ Second, the Committee noted that there are vast areas within Canada's Search and Rescue region with insufficient SAR coverage due to the enormous SAR Regions of Responsibility (SRR) and the great distances that must be covered by SAR assets.⁸ Of particular concern are the Canadian Arctic, which is experiencing an increase in marine traffic, and the coastal waters of Newfoundland and Labrador, whose long coastline is the busiest area for maritime SAR in the country.⁹ Third, the risk of the unavailability of primary SAR aircraft in the near future was a cause for concern highlighted in the report. Of these aircraft, the Cormorant and Griffon helicopters are currently undergoing a mid-life upgrade and life extension project respectively. Combined with the upcoming transition to the C-295W, the fixed-wing SAR replacement, there is a risk of gaps in SAR coverage in all three SRRs. The Committee concluded that additional helicopter SAR assets are needed.¹⁰

The Committee considered several options. They include: increasing the size of the CAF's SAR fleet; privatizing aeronautical SAR; using a private civilian service provider to temporarily fill the gap in coverage during upgrades and procurement, and; using a private civilian service provider to supplement existing government SAR assets and expand coverage.¹¹ As mentioned, the Senate Committee has recommended the

⁷"International Convention for the Safety of Life at Sea," His Majesty's Stationery Office. (London: 1929), <http://www.imo.org/en/KnowledgeCentre/ReferencesAndArchives/HistoryofSOLAS/Documents/SOLAS%201929%20UK%20Treaty%20Series.pdf>; Canada, Senate of Canada, "When Every Minute Counts...", 23-25.

⁸ For more information on Canada's Search and Rescue Region, see: National Defence and Fisheries and Oceans Canada, *CAMSAR, Canadian Aeronautical and Maritime Search and Rescue Manual, Combined Edition – Volumes I, II, and III, Supplement to the IAMSAR Manual, B-GA-209-001/FP01*, effective date 30 September 2014, CAMSAR I.

⁹ Canada, Department of National Defence, "Info Brief on Canadian Armed Forces Search and Rescue (SAR) in Canada," Canadian Armed Forces Strategic Joint Staff: 2018, <https://www.icao.int/NACC/Documents/Meetings/2018/SAR/SARMeeting-P02.pdf>

¹⁰Canada, Senate of Canada, "When Every Minute Counts...", 26.

¹¹*Ibid.*, 26.

public-private hybrid option to expand the delivery of domestic SAR in Canada; however, contracting a civil operator to provide Canadian domestic SAR has historically been met with resistance. Both the Canadian public and the CAF SAR community question whether a contracted civil SAR operator can deliver SAR services in a manner and at a level that are consistent with the service provided by the CAF. It is thus uncertain if the Senate Committee's recommended course of action is an acceptable, credible and legitimate option. With the aim of resolving this uncertainty, this study will conduct an institutional analysis of the public-private partnership model proposed by the Senate Committee. In particular, it will show that, with careful application of simple recommendations, the hybrid model can be a legitimate option for the aeronautical delivery of maritime SAR.

A significant challenge to conducting this analysis is the hypothetical nature of the hybrid model. Care was therefore taken to found assumptions on similar models of service delivery. For instance, the Senate Committee based recommendations on findings obtained during site-visits to countries who exercise alternate service delivery for the aeronautical delivery of maritime SAR, namely the United Kingdom, Ireland, Norway and Australia.¹² As such, assumptions on how Canada could integrate a civil operator in its delivery of domestic SAR were based on the models studied by the Committee. Also, to understand how civil SAR operations function in Canada, the operations of a Canadian private maritime SAR provider were also examined. A second challenge to conducting this analysis is the confidential nature of much of the relevant information. Government and company representatives consulted were not at liberty to disclose specifics about

¹² Canada, Senate of Canada, "When Every Minute Counts..." 27.

government contracts, company standard operating procedures and company policies, particularly in relation to enforcing company regulations. Nonetheless, information was amassed in sufficient detail to achieve a level of understanding necessary to conduct the analysis.

In order to analyze the Committee's recommendation, Chapter 1 will first provide a detailed description of the proposed hybrid SAR model. Chapter 2 will then chose and define an analysis framework. Chapters 3, 4 and 5 will apply the framework to the Senate Committee's recommended model. The analysis will focus solely on the helicopter delivery of domestic SAR, as proposed by the Committee. Chapter 6 will conclude the study by determining concerns and making recommendations to mitigate the risks to success of the public-private hybrid model of delivery of Canadian domestic SAR.

Conclusion

The Standing Senate Committee on Fisheries and Oceans has identified challenges and concerns with the CAF's provision of domestic maritime SAR and recommends that DND authorize a civilian helicopter operator to supplement its existing SAR services. This study of the proposed hybrid option, and the recommendations that ensue, aim to help ensure the highest quality of maritime SAR in Canada.

CHAPTER 1: PROPOSED DELIVERY OF DOMESTIC SEARCH AND RESCUE

The Standing Senate Committee for Fisheries and Oceans recommends that the Department of National Defence authorize a military and civilian hybrid delivery of domestic search and rescue. In order to understand if the hybrid model can become a legitimate institution, it is necessary to first analyze and compare the Canadian military and civilian SAR organizations. This chapter will first review the current manner in which the CAF delivers domestic SAR. It will then recapitulate the impetus for the Committee's recommendation and analyze its proposal. Because the Committee based its advice on findings obtained from studying alternative service delivery of SAR in other countries, namely the United Kingdom, Ireland, Norway and Australia, an overview of these countries' methods will be effected. Since alternative service delivery has been met with criticism, this chapter will conclude by exploring the critiques and support for the commercial delivery of SAR.

CAF SAR Responsibility

Canada is obligated to provide SAR services in accordance with the 1944 Convention on International Civil Aviation, the 1974 International Convention for the Safety of Life at Sea, the 1979 International Convention on Maritime Search and Rescue, the 1982 United Nations Convention on the Law of the Sea, and the 2011 Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic.¹³ As

¹³ International Civil Aviation Organization (ICAO), "Convention on International Civil Aviation-Doc 7300," http://www.icao.int/publications/Documents/7300_orig.pdf; International Maritime Organization, "International Convention for the Safety of Life at Sea (SOLAS)," 1974, [http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Safety-of-Life-at-Sea-\(SOLAS\).-1974.aspx](http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Safety-of-Life-at-Sea-(SOLAS).-1974.aspx); International Maritime Organization, "International Convention on Maritime Search and Rescue," 1979, <https://treaties.un.org/doc/publication/unts/volume%201405/volume-1405-i-23489-english.pdf>; United Nations, Oceans & Law of the Sea, "The United Nations Convention on the Law of the Sea," 1982, http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf; Arctic Council,

discussed, to this end, Canada has developed the NSP. A collaborative effort by federal, provincial and municipal governments, the NSP includes the following three components: Aeronautical SAR, Maritime SAR, and Ground SAR. The CAF is primarily responsible for the provision of aeronautical SAR. While the provision of Maritime SAR is the mandate of DFO and the CCG, the CAF is also deeply involved in maritime SAR operations, the focus of the Senate Committee's evaluation and November 2018 report.

First, DND has principal responsibility for all aeronautical and maritime operational SAR matters. The Minister of National Defence is the Lead Minister for SAR and the single spokesperson for the government on all SAR matters. International Civil Aviation Organization (ICAO) and International Maritime Organization (IMO) agreements define the Canadian federal area of responsibility (AOR) for aeronautical and maritime SAR incidents and the Canadian federal SAR AOR has been subdivided into three SRRs, each under the responsibility of a JRCC commanded by a CAF officer.¹⁴ JRCCs coordinate aeronautical SAR operations as well as maritime SAR operations, where the latter are jointly coordinated by the CAF and the CCG. Finally, the CAF provides critical primary and secondary SAR assets in support of the maritime SAR mandate over oceanic, coastal and secondary waters as well as the inland waters of the Great Lakes, St. Lawrence River System and Lake Melville, Labrador.

CAF SAR Assets and Posture

In order to fulfill its SAR mandate, the CAF operates both fixed-wing and rotary-wing aircraft in primary and secondary SAR roles across the country, based mainly near

"Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic," 12 May 2011.

¹⁴ Canada, National Defence and Fisheries and Oceans Canada, *CAMSAR*....

large population centres and in areas with high occurrence of SAR incidences. Each of the aircraft types may be tasked in aeronautical or maritime SAR operations. The following graphics summarize and depict CAF's aviation SAR resources.



Fig 1.1. Canadian SRR Boundaries, JRCC Locations and SAR Assets.¹⁵

¹⁵ Canada, Government of Canada, "Search and Rescue Operations," last accessed 15 Mar 19, <https://www.canada.ca/en/department-national-defence/services/operations/military-operations/search-rescue.html>.

Regions	Fixed-Wing		Rotary-Wing	
	CC-130 Hercules	CC-115 Buffalo	CH-149 Cormorant	CH-146 Griffon
<i>Primary SAR Assets</i>				
442 Squadron Comox	0	6	5	0
435 Squadron Winnipeg	4	0	0	0
424 Squadron Trenton	4	0	0	5
413 Squadron Greenwood	3	0	5	0
103 Squadron Gander	0	0	3	0
<i>Secondary SAR Assets</i>				
417 Squadron Cold Lake	0	0	0	3
439 Squadron Bagotville	0	0	0	3
444 Squadron Goose Bay	0	0	0	3

Table 1.1. Canadian Search and Rescue Aviation Resources.¹⁶

While the JRCCs maintain a 24/7 watch to respond to SAR incidents, SAR aircrews require time to get airborne once tasked, known as their reaction time. Primary squadrons hold a 30 minute reaction time posture during historically peak incident hours, for 40 hours per week. This posture is reduced to a two-hour reaction time for the remainder. Secondary SAR squadrons, on the other hand, are postured for a 12 hour reaction time. These assets may not be tasked directly by the JRCCs, as may primary SAR assets. Permission to employ secondary SAR assets must be sought by the JRCC from the RCAF's 1 Canadian Air Division and will only be granted if appropriately

¹⁶ Canada, Senate of Canada, "When Every Minute Counts...", 20.

qualified crews are available, and if the tasking does not interfere with the squadron's primary mandate. Finally, for safety reasons, both primary and secondary SAR aircrews are limited to a maximum 15 duty hours per day, before a mandatory crew rest period of 12 hours.¹⁷

Senate Committee Concerns and Recommendations

During their 18 month research, the Standing Senate Committee for Fisheries and Oceans conducted a detailed review of the provision of maritime search and rescue in Canada, as well as SAR services delivered by the CAF. The Committee conducted a literature review as well as interviews with CAF subject matter experts, both in formal witness hearings and during on-site visits to JRCCs and to primary and secondary SAR squadrons.¹⁸ The committee noted concerns with both the aforementioned SAR fleet and the SAR posture, as well as with personnel.

First, the concerns with the SAR fleet stem from aircraft reliability and the coverage the fleet can provide. The committee noted that frequent and lengthy maintenance is required for the current aged fixed-wing fleet. Its replacement, the C-295W, projected to be fully operationally capable in 2023, travels at slower speed, increasing response time. Figure 2 depicts the number of SAR incidents in Canada and Canada's coastal waters in 2017 totaling 9300, of which 5582 were maritime incidents. The committee noted witnesses' concern with the decision to not station any fixed-wing aircraft in Newfoundland and Labrador, where the number of SAR incidents is approximately twice the national average, or near Canada's North where marine traffic

¹⁷ Some exceptions apply to both extending the duty day and reducing the crew rest; Canada, Department of National Defence, "Flying Operations Manual," 2019, 197.

¹⁸Canada, Senate of Canada, "Standing Committee Fisheries and Oceans: Witnesses," 42nd Parliament, 1st Session, last accessed 15 Mar 19, <https://sencanada.ca/en/committees/pofo/Witnesses/42-1>.

has more than doubled in the past 40 years and may double again by 2020 in some areas of the Arctic.¹⁹ Canada, as an Arctic Council member state, has agreed to “promote the establishment, operation and maintenance of an adequate and effective search and rescue capability” in its designated area of responsibility. This area of responsibility includes the North Pole, approximately 2400 nautical miles from the Canadian Forces Base (CFB) Winnipeg where the fixed-wing SAR assets responsible for the North are stationed.

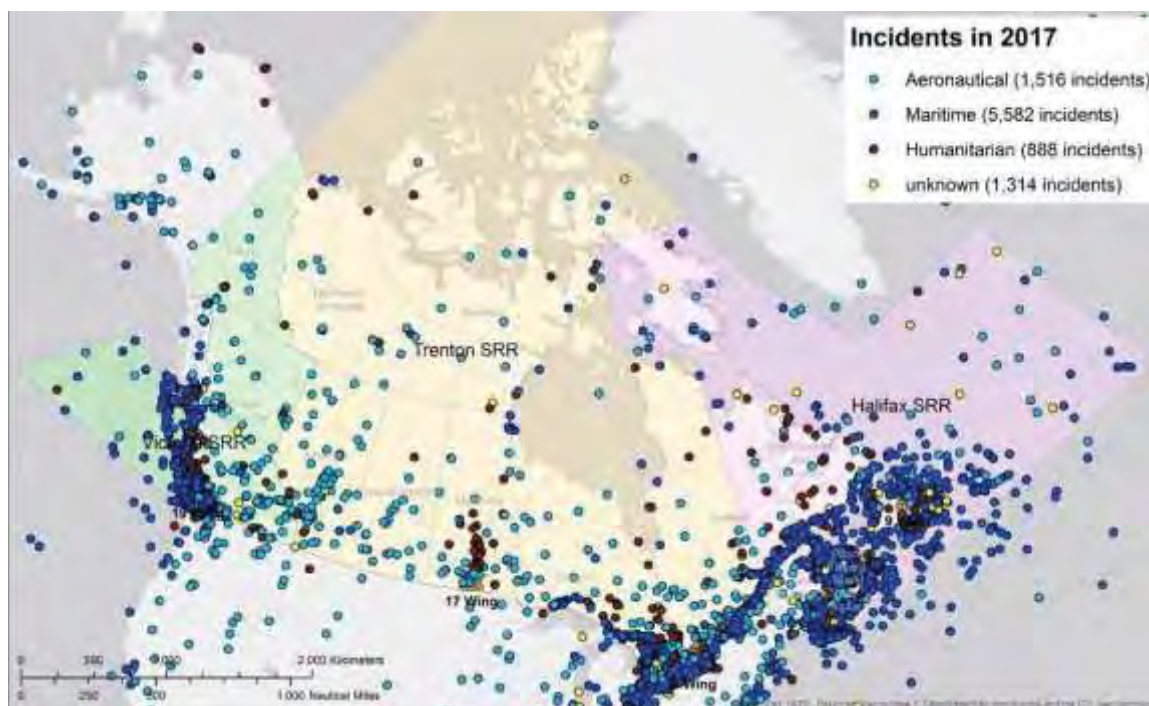


Fig 2.1. Distribution of 2017 SAR Incidents.²⁰

The committee also had concerns about the Cormorant helicopter fleet. It remarked specifically on reduced availability of the Cormorant helicopters due to increasing maintenance with age. Further, the Cormorants have operated only from the coasts since 2005, when the decision was made to temporarily increase their presence in

¹⁹ Canada, Senate of Canada, “When Every Minute Counts...,” 28.

²⁰ Canada, Department of National Defence, “Info Brief...”

the coastal SRRs, while conducting Great Lakes SAR from CFB Trenton with Griffon helicopters. The Cormorant and Griffon helicopters are currently undergoing a mid-life upgrade and life extension project respectively. The helicopters' upgrades, combined with the transition to the upcoming fixed-wing SAR aircraft, led the Committee to be concerned about the risk of gaps in SAR coverage in all three SRRs.²¹

The Committee also noted CAF challenges in recruiting and retaining personnel, namely SAR Technicians (SAR Techs) and JRCC aeronautical SAR coordinators.²² SAR Techs are primary care paramedics who operate from airborne SAR platforms and provide on-scene medical aid and evacuation. They maintain proficiency in parachuting, diving, mountaineering and medical skills, and are crucial the success of SAR operations. JRCC SAR coordinators delegated the critical responsibility of “planning, coordinating, controlling and directing the response to aeronautical SAR incidents.”²³ Further, in a February 2019 interview with The Canadian Press on the topic of the CAF pilot shortage, RCAF Commander Lieutenant-General Meinzinger noted that transitions to a new aircraft (such as from the current fixed-wing SAR aircraft to the new aircraft) are particularly difficult since the CAF must maintain experience within the current capability while training pilots on the incoming fleet.²⁴

Finally, the Committee noted that expert witnesses expressed concern over the CAF's two-tier reaction time to SAR incidents. Although the 30-minute posture can be shifted to coincide with peak incidence periods in each SRR, due to limited crews and

²¹ Canada, Senate of Canada, “When Every Minute Counts...,” 22.

²² *Ibid.*

²³ Canada, National Defence and Fisheries and Oceans Canada, *CAMSAR...*, 5.

²⁴ Lee Berthiaume, “Clock ticking as Royal Canadian Air Force looks to stop hemorrhaging experienced pilots,” *National Post*, 10 Feb 2019. <https://nationalpost.com/news/canada/clock-ticking-as-air-force-looks-to-stop-hemorrhaging-experienced-pilots>.

aircraft, this posture can only be held for 40 hours per week. Witnesses stressed that the two-hour reaction time often resulted in missions becoming “recovery-oriented instead of rescue-oriented.”²⁵ That is, due to the lengthier SAR response, crews are sometimes not able to arrive in time to save a life. The Committee learned that many other countries exercise a reaction time of 15 minutes during the day and 35 to 45 minutes at night.²⁶ Decreasing the CAF’s response time would necessitate more aircraft and associated maintenance and infrastructure; however, financial resource constraints and lengthy approval and procurement processes restrict the short-term acquisition of additional aircraft and infrastructure for DND. Thus, CAF strategic direction requires that the Cormorant Mid-Life Upgrade (CMLU) Project extend the required Rotary Wing SAR services to at least 2040 by addressing equipment obsolescence.²⁷ Further, the CAF is experiencing difficulty retaining experienced pilots, SAR Techs and aircraft maintainers, creating shortages within these occupation and preventing the expansion of CAF SAR services.²⁸ The Committee therefore investigated the method of SAR delivery of countries employing civilian companies for some or all of their helicopter SAR operations.

The Committee has listed a number of interesting recommendations to address the Canadian aeronautical SAR challenges, including a military-civilian hybrid option to SAR delivery in Canada that it believes can offer a cost-effective solution in areas where there is insufficient SAR coverage. As mentioned, it has recommended that DND, in its

²⁵ Canada, Senate of Canada, “When Every Minute Counts...,” 24.

²⁶ *Ibid.*, 24.

²⁷ Canada. Royal Canadian Air Force. Business Case Analysis: CH149 Cormorant Mid-Life Upgrade (CMLU) Project SSE #55, 26 July 2018.

²⁸Chris Thatcher, “Managed Shortfall,” *Skies Magazine*, 2 March 2018, <https://www.skiesmag.com/features/managed-shortfall/>.

mandate to provide aviation assets in support of Canada's SAR mandate, "authorize a civilian helicopter operator to provide aeronautical search and rescue coverage in the Canadian Arctic and in Newfoundland and Labrador."²⁹ The committee suggests staging a private SAR helicopter provider in the Canadian Arctic where marine traffic and tourism are steadily increasing, as well as in Newfoundland and Labrador in the vicinity of active marine traffic, in order to supplement 103 SAR Squadron in Gander. In addition, to bridge any helicopter availability gap in the Trenton, Halifax and Victoria SRRs, the committee proposes employing an interim private SAR provider during the Griffon life extension project and the Cormorant mid-life upgrade.³⁰ Prior to analyzing the theoretical hybrid model of SAR delivery in Canada, it is important to understand how public-private partnerships can operate.

Public-Private Partnerships in Search and Rescue Delivery

During its fact-finding mission, the Senate Committee studied several countries that use public-private partnerships in the delivery of search and rescue. These include: the United Kingdom, Ireland, Norway, and Australia. This chapter will review these countries' models, while more explicit detail will be explored during the institutional analysis. Additionally, in order to better understand civil aviation in Canada, this study will review the operations of one of Canada's providers of private maritime SAR.

In the United Kingdom (UK) the provision of SAR services is the mandate of the country's government. When the Royal Air Force's and Royal Navy's aging SAR helicopters were due to be replaced, the UK government felt it could not justify the

²⁹ Canada, Senate of Canada, "When Every Minute Counts...", vi.

³⁰ *Ibid.*, 29

capital investment required.³¹ Instead, in 2013 the Department for Transportation awarded a 10-year contract to Bristow Helicopters Ltd. Managed by the UK Maritime and Coast Guard Agency, the contract authorized Bristow to provide all helicopter SAR services at sea and inland on behalf of Her Majesty's Coast Guard (HMCG).³² Bristow operates 24 hours per day, seven days per week, from 10 bases across the UK. Helicopters and crews display HMCG livery and are coordinated and tasked by HMCG's Aeronautical Rescue Coordination Centre.³³ Their performance is measured by aircraft serviceability and SAR reaction time, which requires them to be airborne within 15 minutes between 0800 and 2200 daily, and 45 minutes otherwise.³⁴

In Ireland, the Irish Department of Transport (DoT) is responsible for the delivery of maritime and aviation SAR services. The Irish Coast Guard (IRCG) is responsible to the DoT for the coordination of maritime SAR through its Marine Rescue Co-ordination Centre (MRCC), whereas the Irish Aviation Authority (IAA) is responsible to the DoT for the coordination of the Aeronautical SAR response through its Aviation Rescue Co-ordination Centre (ARCC).³⁵ A SAR contract was first adopted in Ireland in 1991 to supplement military SAR, and a commercial operator has been the sole provider of helicopter SAR services since 2004 when Ireland's Air Corps was relieved of its limited

³¹ Canada, Senate of Canada, "When Every Minute Counts..." 24

³² United Kingdom, United Kingdom Government, "Coastguard Search and Rescue Helicopter Programme," last accessed 15 Mar 19, <https://www.gov.uk/government/news/coastguard-search-and-rescue-helicopter-programme>.

³³ Bristow Search and Rescue, "UK Search and Rescue Overview and Capability," last accessed 15 Mar 19, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/488008/Clark_Broad_without_videos.pdf.

³⁴ *Ibid.*

³⁵ Ireland, Department of Transport, *Irish National Maritime Search and Rescue (SAR) Framework*, (Irish Coast Guard: 2010), Art 1.6.2.

SAR duties.³⁶ In 2012, Canadian Holdings Corporation Ireland (CHCI) was awarded a 10-year contract to provide all helicopter SAR services in Ireland on behalf of the IRCG. Canadian Holdings Company (CHC) was established in 1987 by merging three Canadian helicopter companies; and it quickly acquired British, Norwegian, Australian and Brazilian helicopter companies to become an international provider of helicopter services.³⁷ The IRCG has been tasked to manage the CHCI contract, including monitoring its performance, using an aviation consultant to provide technical assistance on technical aviation issues.³⁸ CHCI helicopters and crews display IRCG insignia. Their expected performance criteria are based on a reaction time of 15 minutes on urgent calls from normal ground readiness between 0730 and 2100 and 45 minutes between 2100 and 0730.³⁹

In Norway, aeronautical SAR comes under two government ministries. The Norwegian Ministry of Justice and Public Security is responsible for the overall coordination of Search and Rescue services in Norway, while the Ministry of Defence is responsible for the delivery of Search and Rescue services through the Royal Norwegian Air Force's 330 Squadron. Each of the two Norwegian Joint Rescue Coordination Centres coordinates land, sea and air rescue operations, rescue operations for offshore oil and gas installations, as well as rescue operations necessitating international cooperation.⁴⁰ Contracted civilian helicopter operators augment the Ministry of Justice in

³⁶Justin Wastnage, "CHC to Take over Ireland's Search and Rescue Mission," *Flight Global*, 25 May 2004.

³⁷ CHC, "Overview and History," last accessed 24 April 2019, <http://www.chcheli.com/History>.

³⁸ Ireland, Department of Transport, *Review of the Oversight of Search and Rescue (SAR) Aviation Operations in Ireland: Final Report*, Aerospace Qualified Entity:2018, 8.

³⁹ Ireland, Department of Transport, *Irish National...*, Art 2.2.2.

⁴⁰ Norway, Ministry of Justice and Police, *The Norwegian Search and Rescue Service*, (PDC Tangen: 2002), 5.

key offshore and Arctic regions in support of the oil and gas industry.⁴¹ Also, a delay in the delivery of Norway's All-Weather SAR Helicopter (NAWSARH), has created a SAR coverage gap. CHC Helikopter Service was awarded a gap contract to provide SAR services on behalf of the Norwegian Ministry of Justice.⁴²

Australia's national SAR System involves the Australian Maritime Safety Authority, the Australian Defence Force, and relevant state or territory police services. The Australian Maritime Safety Authority (AMSA) is responsible, jointly through JRCC Australia, for the coordination of maritime SAR and for the provision of aeronautical SAR services for civil and internationally registered aircraft in Australia's SRR.⁴³ The Australian Defence Force (ADF) is responsible for the provision of SAR for all ADF and visiting military units on operation or exercise.⁴⁴ Both the AMSA and the ADF have fully contracted the provision of SAR services to commercial SAR providers. Since 2014, Cobham SAR Services has provided dedicated fixed-wing SAR on a 12-year contract on behalf of the AMSA, which also maintains a database of and rotary-wing aircraft available for contracted SAR services.⁴⁵ Each of the ADF services, Army, Navy and Air Force, is currently contracting CHC for the provision of SAR services on 15 to 30 month contracts. The Royal Australian Air Force (RAAF) requires the contracted helicopters to

⁴¹ CHC Helicopters Canada, "Submission by CHC Helicopters Canada to Department of Fisheries & Oceans Senate Evidentiary Committee Canada Search & Rescue Helicopters: Commercial Provision Options and Experience Gained From Other Jurisdictions," Ottawa: 2017, https://sencanada.ca/content/sen/committee/421/POFO/Briefs/CHCHelic_E.pdf.

⁴² CHC Helicopters Canada, "Submission by CHC Helicopters ..."

⁴³ Australia, National Search and Rescue Council, *National Search and Rescue Manual*, Edition 1, January 2019, 34.

⁴⁴ Australia, National Search and Rescue Council, *National Search and Rescue Manual...*, 36.

⁴⁵ Australia, Australian Government, Maritime Safety Authority, "Contracted Search and Rescue Aircraft and Equipment," last accessed 16 Mar 19, <https://www.amsa.gov.au/safety-navigation/search-and-rescue/contracted-search-and-rescue-aircraft-and-equipment>.

maintain 95 per cent availability, 24 hours coverage and a five minute reaction time at each of the major bases.⁴⁶ Contracted aircraft display a standard SAR pattern.

Additionally, the oil and gas industry worldwide contracts private companies to provide SAR helicopters services. The transport of workers and equipment by air or sea to offshore oil rigs and gas platforms carries inherent risks. Offshore industrial accidents such as explosions and fires or a man overboard from oil rigs or drilling platforms are also dangerous possibilities. Private airborne SAR services are employed directly by oil and gas companies to guard against these risks. Cougar Helicopters is the predominant Canadian private provider of offshore SAR and has been providing this service to the oil and gas industry in Canada since 1997. Cougar's SAR service operates from St-John's NL, providing 24 hour coverage. The company holds itself to a 20 minute reaction time and adheres to a bespoke SAR Operations Manual and Standard Operating Procedures, which have been approved by Transport Canada (TC). With one dedicated SAR helicopter and one personnel transport helicopter which can be reconfigured for SAR as a back-up, the company has, on occasion, been asked by JRCC Halifax to aid in East Coast rescue missions.⁴⁷

In summary, there are a number of manners to employ contracted civilian providers in the delivery of domestic SAR. This study reviewed the approaches used in the countries visited by the Senate Committee. It was found that, regardless of the model, the civil SAR provider is responsible to the federal government and responsive to an RCC, whereas a private SAR provider is responsible to the oil and gas industry, yet may

⁴⁶ Philip Smart, "CHC jockeys for ADF-wide SAR/AME contract," *Australian Defence Magazine* 11 May, 2017. <http://www.australiandefence.com.au/news/chc-jockeys-for-adf-wide-sar/ame-contract>.

⁴⁷ Cougar, "What We Do: Search and Rescue," last accessed 6 April 2019, <https://www.cougar.ca/what-we-do.html>.

still be responsive to the RCC if required. Despite the proliferation of civil SAR services, the concept of contracting national domestic SAR delivery remains controversial.

Criticism and Support for Alternative Service Delivery in Search and Rescue

Alternative service delivery (ASD) for SAR has been met with criticism in Canada and in a number of other countries, putting into question the legitimacy of contracting SAR services. ASD is defined as “a means of continuing to provide some services or products, which have been provided traditionally by the Public Service, through, or in partnership with, organizations outside the Public Service.”⁴⁸ In order to better understand the legitimacy of ASD, it is important to examine the critiques of, and support for, SAR ASD.

A review of Canadian news articles regarding the potential contracting of SAR services exposes a number of concerns and critiques from government officials, defence critics, media and Canadian citizens. Similar concerns were revealed in British articles prior to the contracting of UK SAR services. Although the critiques relate mainly to full privatization of SAR, they are also relevant to the hybrid option and should be considered when making recommendations for building a legitimate SAR organization.

The principal concern with respect to contracting SAR services is the level of service that a commercial SAR provider would deliver, compared to the military SAR service provided. Citizens doubt the government’s desire to improve the service, and apprehension was noted with respect to the motivation of commercial SAR providers; specifically that commercial providers may consider financial costs before deciding

⁴⁸ Canada, Treasury Board of Canada Secretariat, “Alternative Service Delivery,” *People in Transition - Knowing Your Options*, Minister of Public Works and Government Services Canada:1996, http://www.collectionscanada.gc.ca/eppp-archive/100/201/301/tbs-sct/tb_manual-ef/Pubs_pol/hrpubs/TB_858/ASD_e.html.

whether to undertake individual missions.⁴⁹ This may be considered to be in sharp contrast with military SAR crews who have accepted unlimited liability and can be lawfully ordered into situations that put their lives at risk. Some British volunteer groups involved in SAR expressed similar concern about the financial and commercial interests of contracted firms, the skills of hired personnel, as well as the quality and amount of live training of the civilian rescue teams.⁵⁰

Both Canadian and British critics expressed concern about contracted services capability. As one British article states, “The military crews are trained to take risks, committed to tackling weather conditions and the dangerous gullies and corries that few commercial pilots would.”⁵¹ In Canada, Professor Martin Shadwick of York University has written extensively on military search and rescue. He believes “the actual monetary savings of privatization or moving the service somewhere else such as the Coast Guard would likely be very small.” He also considers the intangible costs to be extremely high. They include damage to military morale and to the CAF’s connection with the average Canadian, since SAR is one of the CAF’s most recognized roles.⁵² Losing experienced military crews to a contracted commercial SAR provider is also a concern.⁵³ Finally, regulations regarding the certification of aircraft and equipment traditionally used for

⁴⁹ CBC News, “Privatized Search and Rescue Alarms N.L. Officials,” 21 July 2011, <https://www.cbc.ca/news/canada/newfoundland-labrador/privatized-search-and-rescue-alarms-n-l-officials-1.1058024>.

⁵⁰ Steven Morris and Severin Carrell, “Privatisation of UK’s search-and-rescue helicopters raises safety and job fears,” *The Guardian*, 31 Jan 2013, <https://www.theguardian.com/politics/2013/jan/31/search-rescue-helicopters-privatisation-fears>.

⁵¹ *Ibid.*

⁵² Lee Berthiaume, “Liberals considering privatizing search and rescue operations as part of Canadian Forces review,” *National Post*, 11 Apr 2016, <https://nationalpost.com/news/canada/liberals-considering-privatizing-search-and-rescue-operations-as-part-of-canadian-forces-review>

⁵³ Canada, Senate of Canada, “When Every Minute Counts...,” 29.

SAR operations by the military are cause for concern, as are the differences between military and civilian aviation regulations, operating procedure and chains of command.⁵⁴

Support for SAR ASD is also plentiful, much of which is founded on evidence and experience. Commander Graham Finn, former national head of Royal Navy search and rescue said, "You'd be doing a disservice to civilian pilots to suggest they wouldn't go as far as military pilots. The ethos is saving life."⁵⁵ In Ireland, SAR was first temporarily contracted to a commercial provider in 1991 to expand SAR more quickly as the military expanded their fleet. As the contracted service proved to be efficient and reliable, Ireland continued to contract the provision of SAR in parallel with military SAR. The Irish government gradually phased out military SAR provision over the next decade; today Ireland has a fully civilianized SAR service.⁵⁶ According to the UK's Department for Transport statistics and Ireland's Department of Transport, Tourism and Sport statistics, helicopter SAR responses were similar before and after the shift from military SAR to fully contracted SAR, demonstrating no drop in service with a civilian SAR provider.⁵⁷ Contracting services also allows a government to set challenging technical specifications and performance measures such as aircraft serviceability and reaction times and rapid delivery of contract helicopters in contrast to lengthy military procurement.

⁵⁴ Mark Robins, "Essential Equipment: Search and Rescue – Privatization and Innovation Driving Quality," *Rotor and Wing International*, November/December 2017, <http://digitaledition.rotorandwing.com/november-december-2017/essential-equipment-search-and-rescue-privatization-and-innovation-driving-quality/>.

⁵⁵ Steven Morris and Severin Carrell, "Privatisation of UK's search-and-rescue..."

⁵⁶ CHC, "CHC Helicopter Submission to the House of Commons Finance Committee's 2011 Prebudget Consultation," 2011, 4. http://www.ourcommons.ca/Content/Committee/411/FINA/WebDoc/WD5138047/411_FINA_PBC2011_Briefs/CHC%20Helicopter%20Corporation%20E.pdf.

⁵⁷ United Kingdom, Department for Transport, "Search and rescue helicopter statistics: data tables (SARH)," <https://www.gov.uk/government/statistical-data-sets/search-and-rescue-helicopter-sarh01>.

Ireland, Department for Transport, Tourism and Sport, "Annual Report," <http://www.dttas.ie/corporate/english/annual-report-0>.

Commercial providers have greater flexibility than the military in hiring, retention, and salary setting for their crews. Further, a loss of a contracted helicopter must be replaced by the civil provider at no additional cost to the government, a significant advantage of ASD.⁵⁸ Finally, as discussed, the CAF does not have the materiel or personnel resources to augment SAR services in the North or in the busiest areas of SRRs without drawing from other areas; thus the only alternative to ASD is the very status quo that has been put in question by the Senate Committee.

Within the CAF SAR community, views on the civilian provision of SAR services are varied. CAF SAR professionals recognize the lack of oversight that the CAF might have over civilian SAR providers, leading to concerns about disparate standards in training and proficiency, and in quality of equipment.⁵⁹ CAF critics of contracting SAR services question the civilian crews' level of dedication, corporate openness to risk over financial profitability, and their capability to effectively mitigate risk.⁶⁰ The inflexibility of civil aviation regulations and the shortage of SAR-specific civil regulations are of further concern to CAF SAR practitioners. Finally, civil SAR crews' lack of unlimited liability, the potential financial costs to the government and taxpayers of civil contracts, as well as the danger of depleting the community of experience crews due to recruiting from within the RCAF are also concerning to CAF SAR practitioners.⁶¹

Nevertheless, many leaders within the CAF SAR community recognize the potential benefits to ASD. For example, it is recognized that civilian aviation may enjoy

⁵⁸ Canada, Senate of Canada, "When Every Minute Counts...", 29.

⁵⁹ Dany Poitras, "Search and Rescue in the Arctic: A Myth or a Reality?" (Joint Command and Staff Programme Directed Research Paper, 2013), 80.

⁶⁰ Brad Steels, "An Enhanced Canadian Public-Private SAR Partnership-Informed by the UK Privatized SAR-Helicopter Service," (Joint Command and Staff Programme Service Paper, 2018), 13.

⁶¹ Author's personal communications with various CAF SAR professionals.

a technological advantage over the CAF, given the competitive nature of the industry and the relatively slow defence procurement process.⁶² Further, with the increased socio-economic development in Canada's North, it is acknowledged that the civil helicopter industry will expand, providing opportunity for partnerships with established civil operating bases.⁶³ Finally, many leaders in the CAF SAR community agree that other nations' ASD models provide valuable insight that should be examined for potential incorporation into the CAF's model of domestic SAR delivery.⁶⁴

Conclusion

In sum, The Standing Senate Committee for Fisheries and Oceans has recommended that the Department of National Defence authorize a military and civilian hybrid delivery of domestic search and rescue. With the aim of gaining a better understanding of both the military and civilian factors of the hybrid equation, this chapter first studied the current manner in which the CAF delivers domestic SAR by reviewing the CAF's SAR responsibilities, assets and posture. The Committee indicates concerns with the availability of the CAF SAR fleet, the lengthy response time and RCAF personnel shortages. As a way to help mitigate these challenges, the Committee has recommended a public-private partnership for SAR delivery, which the Committee suggests will alleviate those concerns. Since the Committee based its advice on findings obtained from studying alternative service delivery of SAR in the United Kingdom,

⁶² Brad Steels, "An Enhanced Canadian Public-Private SAR...", 13.

⁶³ Dany Poitras, "Search and Rescue in the Arctic..." 80.

⁶⁴ Rhonda Stevens, "Status Quo is not an Option: Evolving Search and Rescue Concepts to Match Emerging Trends," (Joint Command and Staff Programme Directed Research Paper, 2018), 83; Jennifer Weissenborn, "Mind the Gap: The Ground Truth Behind an Optimized National Search and Rescue System," (Joint Command and Staff Programme Directed Research Paper, 2016), 21 Dany Poitras, "Search and Rescue in the Arctic..." Brad Steels, "An Enhanced Canadian Public-Private SAR...", 13.

Ireland, Norway and Australia, these countries' methods were reviewed, as was the predominate Canadian commercial SAR provider to the oil and gas industry.

Finally, since alternative service delivery in some countries has been met with criticism, this chapter explored the critiques and support for the commercial delivery of SAR, including the views internal to the CAF SAR community. Knowledge of the CAF's current mode of operations, concerns with this status quo, as well as advantages and disadvantages of the proposed recommendations will allow a richer institutional analysis of the hybrid model and better guided recommendations for the legitimization of this model. This will be the focus of the remainder of the study.

CHAPTER 2: INSTITUTIONAL ANALYSIS FRAMEWORK

Introduction

An institutional analysis of the hybrid option put forth by the Senate Committee will reveal potential threats to the external and internal legitimacy of the committee's proposal. It will also allow the CAF to implement mitigating measures to mitigate the risks to legitimacy, ultimately assuring the successful implementation of the proposed hybrid option. To this end, this paper will employ W. Richard Scott's institutional analysis framework. This chapter establishes an understanding of Scott's framework by first explaining its applicability to the subject by comparing it to other models and then examining the general concept of institutions. It will then delve into the distinct elements that make up an institution, and how these elements interact to create legitimacy.

Selection of Framework

In order to analyze the Senate Committee's recommendation of the hybrid model of domestic SAR delivery, several methods of analysis were considered, including: agriculturists Herrera, Van Huylenbroeck and Espine's generic four-step methodology for institutional analysis of governance structures; sociologist Elinor Ostrom's Institutional Analysis and Development Framework; and sociologist W.R. Scott's model of institutional analysis.

Herrera, Van Huylenbroeck and Espine's method is described as a comparative institutional analysis, which compares institutional environments and arrangements.⁶⁵ This method is a novel method that showed promise for this study; however, it requires

⁶⁵ Paul Herrera, Guido van Huylenbroeck and Ramon Espinal, "A Generic Four-step Methodology for Institutional Analysis of Governance Structures," Department of Food and Resource Economics, University of Florida, Gainesville: 2005.

further research before it may be considered valid. Elinor Ostrom provides a well-respected method for analyzing economic, political, and social institutions. With an emphasis on pooling common resources, Ostrom focuses on the economic aspect of institutions.⁶⁶ Scott suggests that material resources and technical information do not suffice to for an organization to survive; it also requires acceptability and credibility.⁶⁷ His model emphasizes the social aspect of institutions, building on several disciplines including cognitive psychology, cultural studies and phenomenology while providing a clear analysis framework.⁶⁸

Based on the research findings of sociologist Eric Ouellet and Major Devin Conley of the Canadian Forces College, Scott's model was deemed most appropriate. Ouellet and Conley studied three historic institutional changes within the CAF and suggest that these change initiatives were unsuccessful because they followed rational decision-making and strategies, while overlooking that armed forces are not simply organizations, but also a social institutions, which ultimately undermined CAF internal institutional legitimacy.⁶⁹ Thus, Scott's model emphasizing the social aspect of institutions was deemed most suitable to analyze the proposed hybrid SAR model which the Senate Committee believe will improve the CAF's delivery of SAR to the Canadian people.

⁶⁶ Elinor Ostrom, *Understanding Institutional Diversity*, Princeton, Princeton University Press, 2005.

⁶⁷ W. Richard Scott, *Institutions and Organizations : Ideas and Interests, 4th ed.* (Los Angeles: Sage Publications, 2014), 71.

⁶⁸ W. Richard Scott, *Institutions and Organizations ...*, 53.

⁶⁹ Devin Conley and Eric Ouellet, "The Canadian Forces and Military Transformation: An Elusive Quest for Efficiency," *Canadian Army Journal* 14, no. 1 (2012): 71.

As an element of the state, the military institution must maintain legitimacy in the eyes of its parent population.⁷⁰ SAR is a vital aspect of CAF legitimacy, as the Canadian people see it as an important role that Canada's military should continue to fulfill.⁷¹ Therefore, suggestions of privatizing SAR have, not surprisingly, evoked scrutiny, opinion and emotion from Canadians and the media.⁷² In order to maintain its legitimacy, the CAF must carefully consider the domestic SAR service it delivers, its resource constraints and public opinion. It is thus in the Canadian government's and in the CAF's best interest to ensure the Canadian domestic SAR system's acceptability and credibility in the eyes of the parent population. Further, any changes to the SAR system will likely evoke similar scrutiny, opinion and emotion from within the CAF, particularly the SAR community. The effective operation of the SAR system, to include the hybrid option proposed by the Standing Senate Committee for Fisheries and Oceans, must have endorsement from the SAR community. In brief, changes to the CAF institution to include a civil SAR provider must garner external and internal legitimacy to be enduring and successful.

Institutions

Institutional concepts and analytical methods proposed by organizational and institutional theorists have been numerous, diverse and based on disparate assumptions. Scott aims to integrate the varied theories and analytical approaches with his analytic

⁷⁰ Eric Ouellet & Pierre C. Pahlavi, "Institutional Analysis and Irregular Warfare: A Case Study of the French Army in Algeria 1954–1960," *Journal of Strategic Studies*, 34:6, 2011, 801.

⁷¹ Canada, Department of National Defence. *Views of the Canadian Armed Forces 2018 Tracking Study: Executive Summary*, Earncliffe Strategy Group Inc. (Earncliffe: 2018), 4.

⁷² CBC News, "Privatized Search and Rescue Alarms N.L. Officials," 21 July 2011, <https://www.cbc.ca/news/canada/newfoundland-labrador/privatized-search-and-rescue-alarms-n-l-officials-1.1058024>; Lee Berthiaume. "Liberals considering privatizing search and rescue operations as part of Canadian Forces review," *National Post*, 11 Apr 2016. <https://nationalpost.com/news/canada/liberals-considering-privatizing-search-and-rescue-operations-as-part-of-canadian-forces-review>

framework. He begins by proposing a definition of institutions that encompasses a variety of his predecessors' influences: "Institutions comprise regulative, normative, and cultural-cognitive elements that, together with associated activities and resources, provide ability and meaning to social life."⁷³ Scott proposes that these central elements, which he calls pillars, reinforce and depend on one another as they resist change to the institution, guide the behaviour of the actors within it, and contribute to its social framework.⁷⁴ With an understanding of the institutional concept, a detailed examination of the three pillars can now be assumed.

The Regulative Pillar

The regulative pillar is the most universally emphasized characteristic of institutions, serving to influence actors' behaviour. The explicit regulatory process exercised by institutions is familiar: rule establishment, behaviour monitoring and distribution of reward and punishment serve to support the regulatory system. These rules are often formally established, monitored and sanctioned. For example, the regulative element can manifest itself through constitutions, laws, directives and formal structures of control. The regulative element may also incorporate informal mechanisms of influence, such as shunning and shaming behaviours. Regulation may be restrictive or empowering. Restrictive regulation represses or limits certain behaviour, often with negative sanctions, while empowering regulation enables and encourages thought and action through incentive and reward. Scott acknowledges the interdependence of cognition and emotion and suggests that emotion is one of the greatest influences in social life. He therefore determines that emotions such as fear, dread and guilt, or relief, innocence and

⁷³ W. Richard Scott, *Institutions and Organizations...*, 56.

⁷⁴ *Ibid.*

vindication that are generated by the meaning of the regulatory process cause the regulative element to be extremely powerful.⁷⁵ It is not surprising therefore that this element is so widely emphasized by scholars of all institutional backgrounds.

In sum, the regulative pillar is a coercive expedient that utilizes rules and sanctions to elicit emotions such as the fear of guilt and the confidence of innocence in order to influence behaviour. Further, informal mechanisms of influence such as shaming and shunning are closely related to normative influences, while the meaning systems that cause the regulative pillar to be universally powerful are objects of a cultural-cognitive element, underscoring the importance of the interdependence of the three pillars.⁷⁶

The Normative Pillar

As with the regulative pillar, the normative pillar serves to influence the behaviour of actors within an institution. Whereas rules and sanctions are the regulative pillar's instruments of influence, the normative pillar relies on values and norms. Values describe the principles and standards of how things should be done, while norms prescribe the method or manner in which they should be achieved.⁷⁷ Returning to Scott's definition, institutions originate, exist and serve to bring order to society. It is not surprising then, that for many theorists "shared norms and values were regarded as the basis of a stable social order."⁷⁸ The normative pillar reflects "the deeper commitments that express one's enduring loyalty to the purpose that lie behind doing the job in the first place."⁷⁹

⁷⁵ W. Richard Scott, *Institutions and Organizations...*, 59-63.

⁷⁶ *Ibid.*, 60.

⁷⁷ *Ibid.*, 64.

⁷⁸ *Ibid.*, 66.

⁷⁹ Philip Selznick, *Leadership in Administration: A Sociological Interpretation*. New York: Harper & Row. (1957) in W. Richard Scott, *Institutions and Organizations...*, 66.

The emphasis of the normative pillar is therefore on appropriate behaviour for an actor's given role. Normative systems, like regulative systems, may be perceived as restrictive; however, they can be empowering and enabling as they bestow responsibilities, privileges and licenses upon its actors depending on their role.⁸⁰ Encounters with the normative system can also elicit powerful emotions, rendering this system a potent influence on behaviour. Emotions such as shame and disgrace associated with contravening institutional norms are a strong deterrent, while feelings of self-respect and honour accompanying admirable behaviour are significant incentives. In sum, the normative pillar depends on actors' feeling of social obligation to act in a manner that is consistent with appropriate and expected behaviour, at the risk of eliciting shame and dishonour.⁸¹

The Cultural-Cognitive Pillar

Neoinstitutionists, primarily anthropologists, emphasize the importance of the cultural-cognitive element of institutions.⁸² Scott defines this element as “the shared conceptions that constitute the nature of social reality and create the frames through which meaning is made.”⁸³ External cultural frameworks shape actors' subjective interpretations of the world and of the situations that arise within it. Because the external cultural frameworks that shape actors' subjective interpretations are common to the actors within an institution, the interpretations derived are therefore also shared. In turn, these common subjective interpretations lead to common beliefs and thought patterns,

⁸⁰ W. Richard Scott, *Institutions and Organizations...*, 64.

⁸¹ W. Richard Scott, *Institutions and Organizations...*, 60, 65.

⁸² *Ibid.*, 67.

⁸³ *Ibid.*

which promote behaviours that are implicitly in concert.⁸⁴ A collective perceived correctness of ideas guides actors toward certain behaviours that are taken for granted as obvious actions and routines.⁸⁵

The cognitive element is not devoid of emotion. Contrarily, the affective dimension strongly reinforces the cultural-cognitive pillar. Cultural and cognitive anthropologist Roy D'Andrade proposes the concept of cultural meaning systems, pools of shared knowledge that construct our perceived reality, provide schemas of that reality, direct action and evoke feeling.⁸⁶ Thus, these systems that represent the view of reality and guide behaviour elicit both cognitive and affective activity. Positive, reinforcing emotions of certitude, confidence, competence and connectedness are associated with acting in accordance with shared cultural schemas; whereas feelings of confusion, disorientation, and the perception of cluelessness punish those who act divergently from the prevailing cultural beliefs.⁸⁷ In sum, the cultural-cognitive pillar uses common beliefs and shared logic to elicit either confusion or certainty of belonging in order to influence imitative behaviours.

Carriers

Scott proposes a set of vehicles he dubs carriers that represent the ways in which ideas move through time and space. He suggests four categories of carriers that apply to all three pillars: symbolic systems, relational systems, activities and artifacts.⁸⁸ These carriers will be used to compare and contrast the three pillars of both the CAF and the

⁸⁴ W. Richard Scott, *Institutions and Organizations...*, 67.

⁸⁵ *Ibid.*, 68.

⁸⁶ Roy D'Andrade, "Cultural Meaning Systems." *Culture Theory: Essays on Mind, Self, and Emotion*. (Cambridge: Cambridge University Press: 1984), 96.

⁸⁷ W. Richard Scott, *Institutions and Organizations...*, 70.

⁸⁸ W. Richard Scott, *Institutions and Organizations...*, 70.

civil SAR organizations, ultimately resulting in an assessment of legitimacy. Symbolic carriers refer to the regulative pillar's rules and laws, the normative pillar's values, expectation and standards, and the cultural-cognitive pillar's schemas and frames. Relational carriers rely on role systems; that is, predictable interactions between certain actors holding certain positions within a social network. This may include governance systems in the regulative pillar, authority systems in the normative pillar and identities in the cultural-cognitive pillar. Activities are the institution's practices. Regulative activities include monitoring and sanctioning within the regulative process. Normative activities comprise roles, jobs and routines, whereas predispositions and scripts are cultural-cognitive activities. Finally, artifacts are material objects that are influenced by conscious human activity or the cultural environment.⁸⁹ They include mandated item in the regulatory element, conventional items in the normative element, and symbolic object in the cultural-cognitive context. Each pillar has been addressed in isolation, however the pillars must be also be examined in relation to one another in order to evaluate the overall legitimacy of an institution.

Legitimacy

Key to the analysis is a concrete understanding of what legitimacy is, why it is important that organizations achieve it, who may convey it and how it is assessed. Scott favours American sociologist Mark Suchman's definition of legitimacy: "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definitions."⁹⁰

⁸⁹ Mark Suchman, "The Contract as Social Artifact." *Law & Society Review* 37, no. 1 (2003): 91-142. <http://www.jstor.org/stable/1555071>.

⁹⁰Mark Suchman, "Managing Legitimacy: Strategic and Institutional Approaches," *The Academy of Management Review* 20, no. 3 (1995), 574.

These socially constructed systems, or institutions, must have acceptability and credibility to survive since legitimacy of an organization leads to its credibility and persistence.⁹¹ Legitimacy shelters organizations from scrutiny, questioning, and pressure to change because “audiences perceive the legitimate organization not only as more worthy, but also as more meaningful, more predictable, and more trustworthy.”⁹² Legitimacy also leads to the persistence of an organization since audiences are most likely to support the resourcing of organizations that appear desirable, proper, or appropriate.⁹³ Sources of legitimacy are those who observe and assess organizations. These audiences may be internal or external and have the capacity to “mobilize and confront the organization.”⁹⁴ Subjects of legitimacy, those social entities whose acceptability is being subjected to assessment, are not bound to a passive role, but may exercise agency in creating their own legitimacy.⁹⁵

Legitimacy can be assessed by examining consistency within and between the three pillars, each providing a unique basis for acceptability and credibility. Legitimacy in the regulative element is characterized by the legal or quasi-legal establishment and operation of the institution. The normative pillar emphasizes legitimacy based on conformity to internalized values and norms. Finally, legitimacy in the cultural-cognitive component can be considered the deepest-level of legitimacy as conformity in this element stems from a preconscious common operating picture. Organizations may

⁹¹ W. Richard Scott, *Institutions and Organizations...*, 71; Mark Suchman, “Academy of Management,” *The Academy of Management Review*; Briarcliff Manor Vol. 20, Iss. 3, (Jul 1995): 571.

⁹² Mark Suchman, “Academy of Management...,” 571.

⁹³ Talcott Parsons, *Structure and Process in Modern Societies*, Glencoe: Free Press, 1960, in Mark Suchman, “Academy of Management...,” 571.

⁹⁴ John Meyer, & W. Richard Scott, Centralization and the legitimacy problems of local government. In J. W. Meyer, & W. R. Scott (Eds.), *Organizational Environments: Ritual and Rationality*: Beverly Hills, CA: Sage 1983, 201-202.

⁹⁵ Mark Suchman, “Managing Legitimacy...,” 574.

emphasize one element or another but all three are present to some degree in each institution. As well, the contents of these pillars may change over time but the presence of each is consistent. Misalignment within or between the pillars reinforce disparate behaviours and choices. If the pillars are aligned, the institution enjoys stability and is enduring. Misalignment leads to confusion and conflict, and risks decreasing legitimacy, giving rise to institutional change.⁹⁶ It is therefore critical that the proposed changes to the CAF SAR institution be assessed for legitimacy prior to the implementation of such changes.

Assessing the Legitimacy of the Recommended SAR Model

Political scientist Pierre Pahlavi and sociologist Eric Ouellet endorse the power of the institutional analysis to study change within institutions, yet they note that sociologists have rarely applied institutional analysis to the military institution.⁹⁷ Military institutions, as a component of the state, must maintain the legitimacy of the state and must be seen as acceptable and credible by its nation's populace in order to avoid facing challenges from its parent society. Pahlavi and Ouellet posit that defence institutions adopt change when their political masters doubt the defence institution's ability to adequately perform assigned duties; that is, when the institution lacks legitimacy in the eyes of its authority.⁹⁸

The Senate committee has expressed concern about the acceptability of the CAF's provision of SAR services and, as such, is recommending institutional change in the form

⁹⁶ W. Richard Scott, *Institutions and Organizations...*, 71, 74.

⁹⁷ Eric Ouellet & Pierre C. Pahlavi, "Institutional Analysis and Irregular Warfare: A Case Study of the French Army in Algeria 1954-1960," *Journal of Strategic Studies*, 34:6, 2011, 801.

⁹⁸ Pierre C. Pahlavi & Eric Ouellet, "Institutional Analysis and Irregular Warfare: Israel Defense Forces during the 33-Day War of 2006," *Small Wars & Insurgencies*, 23:1, 2012, 34.

a public-private partnership for the delivery of domestic SAR. Often, responding to pressure to preserve external legitimacy through institutional change can lead to the disturbance of an institution's internal balance, its internal legitimacy and ultimately, its effectiveness.⁹⁹ Thus, in order to avoid disturbing the effectiveness of military SAR operations, it is crucial that proposed changes to the institution be assessed for both internal and external legitimacy prior to implementing changes, and any threats to legitimacy be mitigated prior to the implementation of constitutional changes.

In order to achieve legitimacy and subsequent stability of merged organizations such as the recommended hybrid option for SAR delivery, it is proposed that alignment must first occur within the newly interlocking pillars of the original institutions. Thus, in order to predict whether the hybrid model of domestic SAR delivery that is proposed by the Senate Committee will secure internal and external legitimacy, an institutional analysis of the proposed hybrid model will be conducted. It is assumed that, with the exception of the concerns noted by the Senate Committee, the CAF SAR institution enjoys both internal and external legitimacy. Thus, if the inclusion of alternate service delivery into the pre-existing CAF SAR model can elicit stability within and between pillars, it will be determined that the hybrid model will likely be successful. If misalignment is evident, recommendations will be made to improve congruence, legitimacy and, ultimately, institutional stability.

Conclusion

The CAF is an institution comprised not only of personnel and materiel resources but also of social constructs. The legitimacy of an institution is based on internal and

⁹⁹ Pierre C. Pahlavi & Eric Ouellet, "Institutional Analysis and Irregular Warfare: Israel Defense Forces during the 33-Day War of 2006," *Small Wars & Insurgencies*, 23:1, 2012, 34.

external observers' perception of whether the intuition's actions are credible and appropriate. Scott's model of institutional analysis will be applied to assess the hybrid SAR model recommended by the Senate Committee. Scott's model provides the most comprehensive yet straightforward framework for institutional analysis, accounting for the regulative, normative and cultural-cognitive aspects of institutions. This institutional analysis, which is summarized in Annex A, will determine the risks to the model's legitimacy and help shape recommendations for the success of this institutional change initiative.

CHAPTER 3: THE REGULATORY PILLAR

The regulatory pillar influences behaviour with the use of rules and sanctions. The explicit regulatory process exercised by institutions supports the regulatory system and is comprised of rule establishment, behaviour monitoring and the distribution of reward and punishment. These rules are often established, monitored and sanctioned in a formal manner; however, the regulative element may also incorporate informal mechanisms of influence, such as shunning and shaming to affect behaviour. This chapter will examine each of the four carriers of the regulatory pillar with respect to both CAF and civil SAR operators.

Symbolic Carriers

The regulative pillar's symbolic carriers are its rules and laws.¹⁰⁰ The CAF is regulated by many such carriers. For example, the Queen's Regulations and Orders (QR&O's) and the Defence Administrative Orders and Directives (DAOD's) provide overarching direction for CAF members' conduct. Behaviour such as low flying, disobedience to an aircraft captain's orders, and scandalous behaviour are prohibited by QR&O's, while DAOD's address a wide range of topics such as quality assurance, heat stress, the misuse of alcohol, and family violence.¹⁰¹

RCAF flying operations are regulated by symbolic carriers such the National Defence Flying Orders and the 1 Canadian Division Orders, including the Flight Operations Manual. The National Defence Flying Orders provide direction such as

¹⁰⁰ W. Richard Scott, *Institutions and Organizations...*, 97.

¹⁰¹ Canada, Government of Canada, *Defence Administrative Orders and Directives*, last modified 3 March 2017.

weather limits and aircrew standards for all Canadian Armed Forces flying operations.¹⁰² The Flight Operations Manual (FOM) provides specific direction for each type of military flying community, including SAR. It delineates, for example, SAR pilots' qualification and currency requirements, maximum accumulated flying times, crew duty limitations and crew rest requirements.¹⁰³ Subordinate orders such as Wing and Squadron Orders provide more specific direction. Behaviour that is found to be inconsistent with these orders is sanctioned accordingly by regulatory activities.

Aircraft maintenance is also highly regulated in DND. Enabled by the Aeronautics Act, The DND Technical Airworthiness Authority (TAA) is responsible for the Technical Airworthiness Program which regulates the design, the manufacturing, the maintenance and the materiel support of aeronautical products used in CAF operations.¹⁰⁴

The program is based on principles and concepts common to civilian and military airworthiness authorities worldwide; it requires that airworthiness-related activities are completed to accepted standards, by authorized individuals, who work in accredited organizations, using approved procedures and relies on rules, standards, directives and advisory material to control activities related to airworthiness.¹⁰⁵ The symbolic carriers that regulate maintenance activities include the Technical Airworthiness Manual, Airworthiness Design Standards Manual, Technical Airworthiness Authority Advisories,

¹⁰² Canada, Department of National Defence, *National Defence Flying Orders B-GA-100-001/AA-000*, 2019.

¹⁰³ Canada, Department of National Defence, *Royal Canadian Air Force Flight Operations Manual*, 2019.

¹⁰⁴ Canada, Justice Department, *Aeronautics Act*, Ottawa, 2019; Canada, Government of Canada, *Defence Administrative Orders and Directives*, DAOD 2015-0, last modified 26 July 2018.

¹⁰⁵ Canada, Department of National Defence, "Technical Airworthiness Authority Overview," last modified 15 March 2018, <https://www.canada.ca/en/department-national-defence/services/military-airworthiness/technical-airworthiness-authority-overview.html>.

and Airworthiness Directives and Canadian Forces Technical Orders.¹⁰⁶ These documents delineate rules and standards, clarification and guidance, product design deficiencies and associated rectifying action, and technical direction.¹⁰⁷

When considering the hybrid model of SAR delivery, it must be recognized that contracted civilians are not subject to CAF and RCAF orders. As such, the regulatory symbolic carriers that guide the behaviour of military SAR personnel do not likewise guide the behaviour of contracted personnel. Civilian contractors are subject to their country's respective labour laws. For instance, the Canada Labour Code sets out minimum standards for federally regulated employers and employees.¹⁰⁸ Also, civilian companies issue codes of conduct to which their employees must adhere. For example, the UK's civil SAR provider, Bristow, has implemented a Code of Business Integrity, which defines the principles employees must follow, and the behaviour they must demonstrate. The goal of the Code of Business Integrity is to: "promote honest, safe and ethical conduct; maintain a workplace in which the safety, integrity and dignity of each individual is valued; assure compliance with laws, rules and regulations; and assure the proper use of the company's assets."¹⁰⁹ CHC, the civil SAR provider in Ireland, Norway and Australia, has issued their Code of Business Conduct, Ethics and Integrity directing the standards of behaviour that the company and its board of directors expect from its employees, addressing: the work and external environments; fair dealings; and business

¹⁰⁶ Canada, Department of National Defence, "Technical Airworthiness Authority..."

¹⁰⁷ *Ibid.*

¹⁰⁸ Canada, Employment and Social Development. "Federal Labour Standards," last accessed 24 April 2019, <https://www.canada.ca/en/employment-social-development/programs/employment-standards/federal-standards.html>.

¹⁰⁹ Bristow, "Vision, Mission, Values," last accessed 8 April 2019, <http://bristowgroup.com/about-bristow/values/>; Bristow, *Code of Business Integrity*, Houston: 2017.

practices.¹¹⁰ Of note, each of these companies' codes of conduct includes regulatory and normative aspects and will also be considered within the normative element.

While RCAF SAR operations are strictly regulated by the aforementioned flying orders, civilian SAR operators are not subject to military orders. Nevertheless, in the countries examined by the Senate Committee, civil aviation is highly regulated. For example, in Ireland, the Irish Civil Aviation Authority (CAA) is responsible for the management of Irish controlled airspace, the safety regulation of Irish civil aviation and the oversight of civil aviation security in Ireland.¹¹¹ This includes, among many other responsibilities, the rules of the air, pilot training and licensing, aircraft maintenance and safety. The Safety Regulation Division (SRD) of the Irish Civil Aviation Authority oversees SAR helicopter operation on legal basis of: the 1993 Irish Aviation Authority Act; Airworthiness certifications regulations, EU Air Operations regulation; Licensing Requirements; and regulations on the Conduct of Search and Rescue Operations.¹¹² As a commercial operator conducting SAR operations in Ireland, CHC is required to hold an Air Operator Certificate and an Irish National Search and Rescue Approval, which affords the company the “permissions, alleviations and exemptions to execute SAR specific operations (low visibility flying, minimum flight levels, etc.).”¹¹³ In Australia, the Civil Aviation Safety Authority (CASA) is delegated most of the same responsibilities as the Irish CAA; however, the Australian Maritime Safety Authority Act

¹¹⁰ CHC, “Code of Business Conduct,” 31 March 2017, available at <https://secure.ethicspoint.com/domain/media/en/gui/34007/index.html>.

¹¹¹ Irish Aviation Authority, “Who We Are,” last accessed 9 April 2017, <https://www.iaa.ie/who-we-are>.

¹¹² Ireland, Transport, Tourism and Sport, Aerospace Qualified Entity, *Review of the Oversight of Search and Rescue (SAR) Aviation Operations in Ireland: Final Report*, Aeronautical Qualified Entity: 2018, 9.

¹¹³ *Ibid.*

of 1990 designated the AMSA as the agency responsible for aviation and marine SAR.¹¹⁴ AMSA audits civil providers of SAR services on their use of AMSA supplied SAR equipment, such as droppable supplies (Life Rafts, emergency Stores Containers, etc), whereas CASA regulates civil aircraft employed in SAR operations.¹¹⁵

The UK's Bristow must comply with the UK's Civil Aviation Authority regulations. Its Helicopter SAR National Approval Guidance assists civil SAR providers in developing procedures and operations manuals. The document delineates the legal, operating and performance requirements to which a SAR helicopter operator must comply.¹¹⁶ In Norway, as in Canada, civil operators do not normally provide domestic SAR services on behalf of the government, save for the current gap contract awarded to CHC whilst the Norwegian government awaits the delivery of NAWSARH. Civil SAR providers must operate in accordance with CAA Norway.¹¹⁷ Hence, the regulatory symbolic carriers that influence the civil SAR operations studied by the Senate Committee are numerous and robust.

Canadian civil aviation is also highly regulated. Similar to the National Defence Flying Orders, the Civil Aviation Regulations (CARs), enabled by the Aeronautics Act and issued by TC, regulate civilian flying operations.¹¹⁸ These are the orders under which civilian SAR providers must operate. Canadian military and civilian flying regulations

¹¹⁴ Australia, Australian Government. "Civil Aviation Safety Authority," last accessed 10 April 2019, <https://www.iaa.ie/who-we-are>; Ireland, Transport, Tourism and Sport, Aerospace Qualified Entity, *Review of the Oversight of Search and Rescue*... 22.

¹¹⁵ Ireland, Transport, Tourism and Sport, Aerospace Qualified Entity, *Review of the Oversight of Search and Rescue*... 22.

¹¹⁶ United Kingdom, Civil Aviation Authority, *UK Helicopter Search and Rescue (SAR) National Approval Guidance: CAP 999*, 2014.

¹¹⁷ Civil Aviation Authority Norway, "About Civil Aviation Authority Norway," last accessed 10 April 2019.

¹¹⁸ Canada, Transport Canada, *Civil Aviation Regulations*, last modified 5 April 2019, <https://www.tc.gc.ca/eng/acts-regulations/regulations-sor96-433.htm#v>.

are relatively congruent. Still, several discrepancies exist. First, with respect to flying operations, the CAF is self-regulating, allowing some flexibility. For example, the flexibility afforded to military flight crews to operate under Instrument Flight Rules without, in certain conditions, planning for an alternate landing location allows greater flexibility in rescue operations compared to civilian crews who must retain enough fuel to fly to their alternate landing location should their primary landing location be inaccessible.¹¹⁹ Also, civil regulations restrict the opening of the helicopter ramp in-flight, a commonly-used military procedure which allows the crewman to visually clear the rear of the helicopter during rescue operations in confined areas.¹²⁰ Finally, hoisting operations are similarly stringently regulated, allowing less flexibility than military SAR operators to hoist patients into the helicopter.¹²¹

Regarding SAR-specific regulations, in contrast to the RCAF Flying Operations Manual and the Irish aviation regulations, there currently exist no TC SAR licensing protocols, aside from regulations governing SAR-related tasks such as hoisting and night vision goggle operations.¹²² The onus remains with the civil SAR provider to set requirements for its crews. Similarly, other flying regulations such as aircrew currency requirements, maximum accumulated flying times, crew duty limitations and crew rest requirements, which are delineated in the RCAF FOM, are the responsibility of each

¹¹⁹ Canada, Department of National Defence, B-GA-100-001/AA-000, *National Defence Flying Orders*, (Ottawa: 2019).

¹²⁰ Christopher Hill, SAR helicopter pilot, Cougar and CAF, Interview 17 April 2019.

¹²¹ Canada, Transport Canada. *Canadian Aviation Regulations 702.21 & 722.21, Helicopter Class D External Loads*, last accessed 5 April 2019, <https://www.tc.gc.ca/eng/acts-regulations/regulations-sor96-433.htm>.

¹²² Canada, Transport Canada, *Canadian Aviation Regulations Part V*, last accessed 5 April 2019, <https://www.tc.gc.ca/eng/acts-regulations/regulations-sor96-433.htm#v>.

private SAR provider to establish. For example, Canadian private SAR provider, Cougar, has based its Operations Manual on military standards.¹²³

Civilian aircraft maintenance is also highly regulated in Canada. As discussed, the DND Technical Airworthiness Program is based on principles and concepts common to civilian and military airworthiness authorities worldwide. Enabled by the Aeronautics Act as is the DND Technical Airworthiness Program, the Canadian civil airworthiness program is regulated by TC's Civil Aviation Regulations' Airworthiness Manual. This symbolic carrier delineates all regulations and standard that individuals and companies must follow regarding the maintenance and certification of civilian aircraft.¹²⁴

In sum, with respect to the provision of domestic SAR, military and civilian regulatory symbolic carriers are not perfectly aligned. First, CAF regulations governing personal conduct, such as the Queen's regulations and Orders and the Defence Administration Orders and Directives, do not to apply civilian contractors in Canada. Civil operators are subject to the nation's labour laws and each company is at liberty to set their respective codes of conduct. In contrast, civil flying and maintenance regulations are clearly established by the Canadian Civil Aviation Regulations, which are relatively congruent with CAF regulations, with the exception of SAR-specific regulations, such as those found in the Irish and Australian models. The regulatory symbolic carriers of the proposed hybrid model of Canadian domestic SAR are consequently assessed as moderately congruent.

¹²³ Canadian Defence Review, "Cougar Helicopters," last accessed 5 April 2019, http://www.canadiandefencereview.com/Featured_content?blog/129.

¹²⁴ Canada, Transport Canada, *Canadian Aviation Regulations*, last accessed 5 April 2019, <https://www.tc.gc.ca/eng/acts-regulations/regulations-sor96-433.htm#v>.

Relational Carriers

Relational carriers rely on predictable interactions between actors holding specific positions within a social network. Within the regulative context, this refers to the institution's governance system, with an emphasis the power aspect of governance.¹²⁵ A governance system is the organizational framework of the rules and the authoritative control within an institution and involves the structure, decisions, negotiations, and power relationships that determine the institution's regulation, tasks and resource allocation.¹²⁶ The CAF's governance system regulates the interactions, relationships, and networks within and between the different commands, which include the Royal Canadian Navy, the Canadian Army, Royal Canadian Air Force, and Canadian Special Operations Command, as well as within and between their subordinate formations. Within the RCAF, the governance structure is comprised of the RCAF directorates, 1 and 2 Canadian Air Divisions as well as the RCAF Aerospace Warfare Centre, and their respective subordinate commands. The governance structure also includes these entities' policies and the framework for their interactions.¹²⁷

The power aspect of the CAF's and RCAF's governance system relates to the institutions' coercive, hierarchical relationships; specifically, the rank structure and chains of command. These power systems are quintessential regulatory relational carriers; they clearly define command relationships and predict the interactions between

¹²⁵ W. Richard Scott, *Institutions and Organizations...*, 99.

¹²⁶ United Nations Development Programme, *A Users' Guide to Measuring Local Governance* (Oslo, Norway: United Nations Development Programme Oslo Governance Centre: 2009), 5.

¹²⁷ W. Richard Scott, *Institutions and Organizations...*, 231; Canada, Department of National Defence, Royal Canadian Air Force, *Canadian Forces Aerospace Command Doctrine B-GA-401-000/FP-00*, last modified 3 March 2016, <http://www.rcaf-arc.forces.gc.ca/en/cf-aerospace-warfare-centre/doctrine/b-ga-401-000-fp-001.page>.

actors holding specific positions in the institution. According to Canadian Armed Forces Leadership Doctrine, command is “the purposeful exercise of authority over structures, resources, people, and activities and is bounded by the lawful authority delegated to a commander,” whereas the rank structure enables these command relationships.¹²⁸

Although domestic SAR need not be a military task, as evidenced by alternative service delivery of SAR in many other countries, insofar that Canadian domestic SAR is delivered by RCAF resources, the chain of command is central to its governance as it is the power system inherent to the CAF.

With respect to the delivery of domestic SAR in Canada, the chain of command begins in the aircraft. The *National Defence Act* provides that, when in a CAF aircraft, all persons, regardless of rank “be under the command, in respect of all matters relating to the flying or handling of the aircraft or affecting the safety of the aircraft, of the captain of the aircraft.”¹²⁹ The aircraft captain, in turn, is subordinate to the Squadron Commanding Officer, the Wing Commander of the RCAF wing to which the squadron belongs, the Commander of 1 Canadian Air Division, The Commander of the RCAF and the ultimately the Chief of the Defence Staff. Each of these commanders exercise lawful authority down the chain of command, including the power to order subordinates into, or out of, harm’s way.¹³⁰

The regulative relational systems for civilian organizations are comprised of the country’s labour law enforcement system, the companies’ governance and power systems

¹²⁸ Canada, Department of National Defence. A-PA-005-000/AP-004, *Leadership in the Canadian Forces: Conceptual Foundations*. (Kingston: Canadian Defence Academy — Canadian Forces Leadership Institute, 2005), 7.

¹²⁹ Canada, *National Defence Act*, Ottawa: 2018, 57.

¹³⁰ Canada, Department of National Defence. A-PA-005-000/AP-004, *Leadership in the Canadian Forces...7*.

and their respective country's aviation authority. Canada's Labour Program supports and encourages voluntary compliance with the *Canada Labour Code* through enhanced awareness and education. Bristow's governance system includes its Executive Officers and its Board of Directors the organization's policies and the framework for their interactions. The Company has formed a Compliance Committee consisting of five members of the Company's senior management team, which is the power system charged with enforcing the Code of Business Integrity.¹³¹ CHC's company governance system is comprised of their Global Corporate Leadership, The Board of Managers, the organization's policies and the framework for their interactions.¹³² The Company has formed an Audit Committee consisting of members appointed by the Company's Board of Managers. This committee, supported by the Compliance and Ethics Department, is charged with monitoring and enforcing compliance with the Code and all policies procedures and rules of CHC.¹³³

Finally, the regulative relational carrier associated with civil flying operations is the civil aviation authority of the country in which the company is operating. In Canada, TC is responsible for issuing, monitoring and enforcing aviation policies and programs. TC administers and enforces regulations regarding pilot and personnel licensing, aircraft and airport operations, drone safety, incident reporting, air travel, and airworthiness. TC therefore represents the power system within Canadian civil flying operations.¹³⁴

¹³¹ Bristow, "Code of Business Integrity," Houston, 2017.

¹³² CHC, "Leadership," last accessed 24 April 2019, <http://www.chcheli.com/leadership>

¹³³ CHC, "Code of Business Conduct," 31 March 2017, available at <https://secure.ethicspoint.com/domain/media/en/gui/34007/index.html>.

¹³⁴ Canada, Transport and Infrastructure, "Aviation," last accessed 1 May 2019, http://www.tc.gc.ca/en/services/aviation.html?utm_source=MR&utm_medium=textlink&utm_campaign=IP-EN.

In sum, the regulative pillar's relational carriers refer to the institution's governance system, which predicts interactions between certain actors holding specific positions within a social network, with an emphasis the power aspect of governance. The CAF's power system is the chain of command, which exercises lawful authority over the structures, resources, people, and activities of the RCAF's SAR operations. The power systems that govern civilian operators are their respective countries' labour codes, the companies' leadership and management who may delegate their regulative powers, and the civil aviation authority in which the company operates. The regulatory relational carriers of the proposed hybrid model of Canadian domestic SAR are consequently assessed as moderately congruent.

Activities

Activities are an institution's practices. Regulative activities include monitoring and sanctioning within the regulative process.¹³⁵ With the symbolic carriers establishing the rules for actors' behaviour, the power aspect of the governance system penalizes behaviour that is not in accordance with those rules with the use of regulative activities. Within the CAF, monitoring of behaviour includes daily supervision of subordinates, practical and written examination, and administrative and technical audits. Behaviour in contravention to orders such as the QR&O's, flying or technical orders may result in sanctioning activities. These regulatory activities may be formal or informal. Formal sanctioning activities include disciplinary action such charges under the National Defence Act leading to Summary Trial or Courts Martial, or administrative action in accordance with DAOD's. Administrative action ranges from remedial measures such as Initial

¹³⁵ W. Richard Scott, *Institutions and Organizations...*, 101.

Counseling, Recorded Warning, and Counseling and Probation, to release of the member from the CAF.¹³⁶ Non-compliance with the Technical Airworthiness Program may also result in formal sanctions including: increased monitoring, the withdrawal of technical authorizations, and administrative or disciplinary action.¹³⁷

The regulative element may also incorporate informal mechanisms of influence, such as shunning and shaming behaviours by actors either within or outside of the institution. Shunning is “the collective exclusion of an individual by being ignored by their peers.”¹³⁸ Even if innocuous and brief, ostracism is painful and psychologically distressing and shaming can be effective behavioral change agent.¹³⁹ Both shunning and shaming or the possibility thereof, are particularly effective at influencing behaviour within highly cohesive social institutions such as the military.¹⁴⁰ Summary trials, which are normally open to military personnel and to the public, are salient examples of a process which incorporates both formal and informal sanctions, as are the publication of charges in routine orders, and unfavourable media attention toward individuals or broader CAF practices and issues.

¹³⁶ Canada, *Defence Administrative Orders and Directives 5019-4 Remedial Measures*, last modified 16 November 2018, <https://www.canada.ca/en/department-national-defence/corporate/policies-standards/defence-administrative-orders-directives/5000-series/5019/5019-4-remedial-measures.html>.

¹³⁷ Canada, *Defence Administrative Orders and Directives 2015-1 DND/CAF Airworthiness Program*, last modified 26 July 2018, <https://www.canada.ca/en/department-national-defence/corporate/policies-standards/defence-administrative-orders-directives/2000-series/2015/2015-1-dnd-caf-airworthiness-program.html#ai>.

¹³⁸ Takeo Tanaka, “The Identity Formation of the Victim of ‘Shunning.’” *School Psychology International* 22, no. 4 (November 2001): 463.

¹³⁹ Eric Wesselmann, James Nairne, and Kipling Williams, “An evolutionary social psychological approach to studying the effects of ostracism,” *Journal of Social, Evolutionary, and Cultural Psychology*, 6(3), 2012, 309.

¹³⁹ *Ibid.*, 317.

¹³⁹ W. Richard Scott, *Institutions and Organizations...*, 63.

Contracted civilian operators in Canada are not subject to the Code of Service discipline under the National Defence Act, the DAOD's or RCAF flying orders. Consequently, official regulative activities are naturally incongruent with the CAF's. Nevertheless, as mentioned, civilians engaging in aviation operations are subject to their nation's labour laws, their company's code of conduct and to their country's aviation regulations. They are also subject to the consequences for non-compliance.

Regulative activities with respect to Canadian labour laws include the Labour Program's activities to promote enhanced awareness and education. Non-compliance is met with enforcement activities that are "fair, foreseeable and nationally consistent."¹⁴¹ Bristow encourages the reporting of violations of policies or standards to company supervisors and employs a confidential third-party website for the reporting of infraction and subsequent Compliance Committee review.¹⁴² CHC avows treating violations of the Code of Business Conduct, Ethics and Integrity as serious matters and directs the immediate reporting of violations of the code. Reports may be made directly to the company's Compliance and Ethics Department or through a third party website.¹⁴³ The Compliance and Ethics Department has the authority to investigate complaints and issue repercussions for violations involving disciplinary action, up to and including dismissal from the company.¹⁴⁴

¹⁴¹ Canada, Canada. Employment and Social Development, "Employer Compliance," last accessed 24 April 2019, <https://www.canada.ca/en/employment-social-development/programs/employment-standards/federal-standards/employer-compliance.html>.

¹⁴² Bristow, "Our Commitment," last accessed 24 April 2019, <https://secure.ethicspoint.com/domain/media/en/gui/56982/index.html>.

¹⁴³ CHC, "Compliance and Ethics Hotline Policy: Policy No. CHC-009," 2017, 2, available at <https://secure.ethicspoint.com/domain/media/en/gui/34007/index.html>.

¹⁴⁴ CHC, "Code of Business Conduct," 31 March 2017, available at <https://secure.ethicspoint.com/domain/media/en/gui/34007/index.html>.

Regarding aviation regulations, in the countries examined by the Senate Committee, the civil SAR providers must comply with their respective civil aviation regulating body, as would an alternative delivery service in Canada. To assess potential congruence of the hybrid model in Canada, Canadian civil regulative activities are specifically examined. Civil aviation safety in Canada is primarily attained by voluntary compliance with the CARs, however the Aviation Enforcement Branch will take action if compliance is not forthcoming.¹⁴⁵ Civil regulations are monitored through routine inspections and audits, police reports, air traffic service personnel, aircraft accident investigations, and public complaints. Confirmed violations are subsequently penalized through deterrent action which may include oral counseling, a monetary penalty, a document suspension, or prosecution.¹⁴⁶ Informal regulative activities are also undertaken by TC to deter offenses. A Corporate Offenders List is published on TC's Aviation Enforcement website. The list includes the name of offending corporations, a synopsis of each violation and the resulting sanctions. Offenses committed by individual employees of a corporation without penalty to the corporation are not published.

In sum, the regulative pillar's activities are an institution's monitoring and sanctioning processes. The CAF's formal sanctions include robust disciplinary and administrative measures, as well as vigorous technical sanctions. Civil aviation sanctions for non-compliance include oral counseling, a monetary penalty, a document suspension, or prosecution, whereas Canadian labour law and civil companies' formal sanctions for

¹⁴⁵ Canada, Transport Canada, "Aviation Enforcement," last accessed 7 April 2019, <https://www.tc.gc.ca/eng/civilaviation/standards/standards-enforcement-menu-3095.htm>.

¹⁴⁶ Canada, Transport Canada, "Aviation Enforcement Program: Here for Aviation Safety," last accessed 7 April 2019, <https://www.tc.gc.ca/eng/civilaviation/standards/standards-enforcement-program-team-671.htm>.

behaviour non-compliant conduct are less explicit. The regulative activities of the proposed hybrid model of Canadian domestic SAR are consequently assessed as moderately congruent.

Artifacts

Artifacts are material objects that are influenced by conscious human activity or the cultural environment.¹⁴⁷ In the regulatory element, they include objects complying with mandated specifications.¹⁴⁸ Just as behaviour is highly regulated in the aviation industry, so are objects. As discussed, the DND Technical Airworthiness Authority is responsible for the regulation of the design, the manufacturing, the maintenance and the materiel support of aeronautical products used in CAF operations, and verifies the airworthiness adequacy of products prior to operational service.¹⁴⁹ Artifacts subject to mandated specifications under the Technical Airworthiness Program include aircraft, aircraft electronic systems, maintenance tools, aviation petroleum and oil products, aviation life support equipment such as aircrew helmets, immersion suits and survival vests, as well as rescue equipment such as hoists and litters.¹⁵⁰ All DND maintenance must be performed by an accredited maintenance organization, having received its accreditation from the Technical Airworthiness Authority.¹⁵¹

¹⁴⁷ Mark Suchman, "The Contract as Social Artifact." *Law & Society Review* 37, no. 1 (2003): 91-142. <http://www.jstor.org/stable/1555071>.

¹⁴⁸ W. Richard Scott, *Institutions and Organizations...*, 104.

¹⁴⁹ Canada, Department of National Defence, "Technical Airworthiness Authority..."

¹⁵⁰ *Ibid.*

¹⁵¹ Canada, Department of National Defence, "Technical Airworthiness Authority Advisory 2013-1," last modified 25 July, 2013, <https://www.canada.ca/en/department-national-defence/services/military-airworthiness/technical-airworthiness-authority-overview/technical-airworthiness-regulatory-documents/technical-airworthiness-authority-advisories/2013-01.html>.

In the countries considered by the Senate Committee, the civilian companies providing alternative service delivery for the provision of domestic SAR are subject to their respective nation's civil aviation authority for the regulation of objects that are subject to mandated specifications.¹⁵² As such, a civil provider of domestic SAR in Canada would be subject to Canadian civil regulations, rather than the DND Airworthiness Program. TC's Airworthiness Program, analogous to DND's, "establishes and enforces requirements and standards regarding aircraft maintenance and manufacturing...ensuring that all aeronautical products built, operated or maintained under Canadian control conform to national and international airworthiness standards."¹⁵³ The CARs Airworthiness Manual outlines detailed specifications for aircraft systems as well as the requirements for TC Approved Maintenance Organizations.¹⁵⁴ It is worthy of note that TC does not specify standards and requirement for SAR-specific equipment or wearable life support equipment. Cougar currently complies with the original equipment manufacturer's standards or other recognized standards for the various pieces of identified equipment.¹⁵⁵ During Program Validation Inspections, TC verifies compliance with the original equipment manufacturer's published inspection criteria and standards.

In sum, the regulative pillar's artifacts are an institution's objects that must comply with mandated specifications. The most relevant regulated artifacts are the aircraft, the aircraft systems, tools, petroleum and oil products, equipment worn by aircrews, and rescue equipment. Though civil artifacts are not subject to mandated

¹⁵² Ireland. Transport, Tourism and Sport, Aerospace Qualified Entity, *Review of the Oversight of Search and Rescue...*

¹⁵³ Canada, Transport Canada, "Aircraft Maintenance and Manufacturing," last modified 17 November 2017, <https://www.tc.gc.ca/eng/civilaviation/standards/maintenance-menu.htm>.

¹⁵⁴ Canada, Transport Canada, *Canadian Aviation Regulations*, last modified 5 April 2019, <http://www.tc.gc.ca/eng/acts-regulations/regulations-sor96-433.htm>.

¹⁵⁵ Willis Jacobs, Cougar Helicopters, "Re: SAR Report," email 18 April 2019.

specifications under the DND Technical Airworthiness Program, most, with a few notable exceptions, are subject to TC safety specifications that comply with international airworthiness standards. The regulative pillar's artifacts in the proposed hybrid model of Canadian domestic SAR are consequently assessed as moderately congruent.

Conclusion

In Scott's model of institutional analysis, the regulatory pillar influences behaviour with the use of rules and sanctions. Both military and civilian aviation operations are highly regulated; however, incongruences are noted between the military and civil regulatory process of rule establishment, enforcement and sanction. Notable incongruences are found in the regulation of personal conduct, as well as between Canadian military and civil regulation of SAR-specific equipment and flying operations. Thus, overall congruence within normative pillar is moderate. The potential risk to legitimacy and recommendations to mitigate the risk will be examined in the concluding chapter.

CHAPTER 4: THE NORMATIVE PILLAR

The normative pillar comprises “the creation of expectations that introduce a prescriptive, evaluative and obligatory dimension into social life.”¹⁵⁶ The emphasis of the normative pillar is therefore on appropriate behaviour for an actor’s given role based on the organization’s values and norms. This element induces prescriptive, evaluative and obligatory components the social aspect of institutions.¹⁵⁷ This chapter will examine each of the four carriers of the normative pillar with respect to both the CAF and civil SAR operations.

Symbolic Carriers

Normative symbolic carriers are an institution’s shared values and normative expectations and standards. The Defence Ethics Program emphasizes the CAF’s “special responsibility for the defence of Canada, its people and its parliamentary democracy,” and charges members with applying the uppermost ethical standards in all their decisions and actions.¹⁵⁸ The Ethics Program is “a comprehensive values-based ethics program put in place to meet the needs of DND and the CAF.”¹⁵⁹ Its goal is “to foster the practice of ethics...such that members...will perform their duties to the highest ethical standards.”¹⁶⁰ The program is explicit in delineating the CAF’s ethical principles, values and expected behaviours. CAF members are expected to abide by the CAF’s ethical principles: respect the dignity of all persons, serve Canada before self and obey and support lawful

¹⁵⁶ W. Richard Scott, “Institutional carriers: reviewing modes of transporting ideas over time and space and considering their consequences,” *Industrial and Corporate Change*, Volume 12, Number 4, pp. 880.

¹⁵⁷ W. Richard Scott, *Institutions and Organizations...*, 64.

¹⁵⁸ Canada, Government of Canada, “Defence Ethics Program: The DND and CF Code of Values and Ethics,” last modified 25 March 2019, <http://www.forces.gc.ca/en/about/code-of-values-and-ethics.page>.

¹⁵⁹ Canada, National Defence, “Defence Ethics Program,” last 3 April 2019, <https://www.canada.ca/en/department-national-defence/programs/defence-ethics.html>.

¹⁶⁰ *Ibid.*

authority. To respect the dignity of all persons, CAF members must treat all persons with respect and fairness, value diversity, create and maintain safe and healthy workplaces, and work together in a spirit of openness, honesty and transparency. To best serve Canada, its people, its parliamentary democracy, DND and the CAF before themselves, members must always make decisions and act in the public interest, perform their duty to the highest ethical standards, avoid personal or organizational conflicts of interest, and strive to be open, candid and impartial. To obey and support lawful authority, CAF members must respect the rule of law and carry out duties in accordance with regulations and in a non-partisan and objective manner.¹⁶¹

Further to its ethical principles, CAF professes 5 core values and their associated expected behaviours. They are integrity, loyalty, courage, stewardship and excellence.¹⁶² Acting with integrity is always using official roles appropriately and acting in a fair and just manner in order to maintain the trust of the public, DND, and CAF members, while preventing conflicts of interest. CAF members are expected to display their loyalty by carrying out the lawful decisions of their leaders while appropriately safeguarding information. A CAF member's courage is reflected by facing challenges with determination and strength of character and making right choices in difficult situations. Stewardship is displayed by responsibly using public resources with consideration for high standards, the environment and future challenges. Finally, CAF members must provide timely, efficient and effective services and seek continuous improvement as they strive for excellence.¹⁶³

¹⁶¹ Canada, Government of Canada, "Defence Ethics Program: The DND and CF Code of Values..."

¹⁶² *Ibid.*

¹⁶³ Canada, Government of Canada, "Defence Ethics Program: The DND and CF Code of Values..."

The CAF's ethics manual, *Duty with Honour*, outlines the characteristics of professions in general, which would include professional aviation, as well as the distinguishing features of the profession of arms. Both types of professions "perform their function competently and objectively for the benefit of society, regulate their conduct through a values-based code of ethics, and ensure that their roles and standards are accepted as legitimate by society;" however, the profession of arms distinguishes itself by serving only the nation, being directly subordinate to the lawful direction of civil authority, and accepting unlimited liability.¹⁶⁴

The RCAF further incorporates professionalism, excellence, and teamwork into its core values.¹⁶⁵ Professionalism is behaving in a manner consistent with the aforementioned distinguishing features of a general profession, as well as with those specific to the profession of arms. Members of the RCAF are therefore expected to be competent and objective in the performance of their duties, conduct themselves ethically, adhere to legitimate standards, serve only the nation as lawfully directed by civil authority, and accept unlimited liability.¹⁶⁶ Professionalism also encompasses service to the nation. As directed by Canada's National Defence policy, *Strong Secure Engaged*, the RCAF serves its nation through the delivery of SAR services, a core CAF mission.¹⁶⁷ Excellence is achieved by seeking continuous improvement through focused and dedicated training, the pursuance professional self-development, and carrying out tasks in

¹⁶⁴ Canada. Department of National Defence, *Duty with Honour... 9.*

¹⁶⁵ Canada, Royal Canadian Air Force, "Chief Warrant Officer of the Royal Canadian Air Force," last accessed 8 April 2019.

¹⁶⁶ Canada. Department of National Defence, *Duty with Honour... 9.*

¹⁶⁷ Canada. Government of Canada. "Strong, Secure, Engaged. Canada's Defence Policy." National Defence. 2017, 7.

a manner that reflects pride in oneself, one's unit and one's profession.¹⁶⁸ Teamwork relies on trust and cohesion to maximize the contribution of individual skills, which, in turn develops versatility and flexibility in accomplishing tasks.¹⁶⁹ Though not explicitly declared an official RCAF value, it can further be surmised, based on the RCAF's robust Flight Safety Program, that safety is also highly valued within the RCAF. The CAF Flight Safety Program (FSP) is "a program of safe behaviour, education, independent airworthiness investigation, promotion and analysis of matters concerning aviation safety."¹⁷⁰ The FSP enables mission success through "the elimination of the accidental loss of aviation resources."¹⁷¹

Regarding civil SAR operators' normative symbolic carriers, both Bristow and CHC's codes of conduct discussed in Chapter 3 include regulatory and normative aspects. Each company, as well as Cougar, also professes a set of values by which they expect their company's employees to abide. As mentioned, Bristow's Code of Business Integrity is meant to: "promote honest, safe and ethical conduct; maintain a workplace in which the safety, integrity and dignity of each individual is valued; assure compliance with laws, rules and regulations; and assure the proper use of the company's assets." Additionally, the company states six values: safety, quality, integrity, fulfillment, teamwork and profitability.¹⁷² CHC expresses 5 values: simplicity, agility, collaboration, innovation and ownership.¹⁷³ Cougar professes to value: leadership, workforce,

¹⁶⁸ Canada, Department of National Defence, "The DND and CF Code of Values and Ethics," last modified 27 August 2014, <http://www.forces.gc.ca/en/about/code-of-values-and-ethics.page>.

¹⁶⁹ Canada. National Defence, *Duty with Honour ...*, 27.

¹⁷⁰ Canada, Department of National Defence, *A-GA-135-001/AA-001 Flight Safety for the Canadian Armed Forces*, 2015, 1-2.

¹⁷¹ *Ibid.*, 1-1.

¹⁷² Bristow, "Vision, Mission, Values," last accessed 8 April 2019, <http://bristowgroup.com/about-bristow/values/>.

¹⁷³ CHC, "Purpose and Values," last accessed 8 April 2019, <http://www.chcheli.com/node/53>

relationships and performance.¹⁷⁴ Similar to the RCAF, Cougar does not include safety in its professed values; nonetheless, the company's robust safety program implies that safety is a priority.¹⁷⁵ Finally, within the greater Canadian aviation community, voluntary compliance with TC aviation regulations is based on normative symbolic carriers: the community's common interest, as well as their commitment and responsibility to safety. It is expected that members of the civil aviation community will act on the bases of common sense, personal responsibility, and respect for others.¹⁷⁶

Consequently, with respect to the provision of domestic SAR, military and civilian normative symbolic carriers are generally, though not perfectly, aligned. Particularly dichotomic are the CAF's emphasis on ethical behaviour, loyalty and courage compared to civil operators' regard for profitability. The concerns expressed by critics of alternative delivery for SAR are reflected in these particularly contrasting values. Critics question the motivation of commercial SAR providers, specifically that commercial providers may prioritize financial costs, in contrast with military SAR crews, having accepted unlimited liability, who are bound to serve the country before self. Yet, many similarities exist. The civil operators' values of leadership, quality, integrity, and teamwork are highly consistent with CAF and RCAF values. As described in *Duty with Honour*, there are values that are common to all professions and others that are distinctively those of the profession of arms. As such, the normative symbolic carriers of

¹⁷⁴ Cougar, "Who We Are," last accessed 8 April 2019, <https://www.cougar.ca/who-we-are.html>.

¹⁷⁵ Cougar Helicopters Inc, "Safety Plan 2019," 8 January 2019.

¹⁷⁶ Canada, Transport Canada, "Aviation Enforcement Program : Here for Aviation Safety," last accessed 7 April 2019, <https://www.tc.gc.ca/eng/civilaviation/standards/standards-enforcement-program-team-671.htm>.

the proposed hybrid model of Canadian domestic SAR are assessed as moderately congruent.

Relational Carriers

Similar to the regulative aspect of institutions, normative relational carriers are comprised of authority systems. These systems create, enforce and monitor norms and values. The authority for the aforementioned Defence Ethics Program is the Assistant Deputy Minister (Review Services) (ADM (RS)). ADM (RS) provides the program's strategy, policy and guidance, while supporting the CAF with the implementation of the program. The chain of command, is then responsible for the implementation of the program.¹⁷⁷ These two relational carriers create, enforce and monitor CAF ethical norms and values, while sanctioning actors' behaviour.

The RCAF's normative relational systems are numerous. RCAF professionalism encompasses competence, standards, and service to the nation.¹⁷⁸ Standards in flying operations and in maintenance are created and enforced by standards and evaluations personnel. These personnel are designated by the chain of command to uphold RCAF professional standards in competency through audits, as well as written and practical evaluations. RCAF air crew members are subject to a minimum of one written and practical examination annually, whereas maintenance organizations are normally subject to a semi-annual audit. The normative relational systems charged with upholding RCAF

¹⁷⁷ Canada, Department of National Defence, "Frequently Asked Questions about the Defence Ethics Program," last 3 April 2019, <https://www.canada.ca/en/department-national-defence/services/benefits-military/defence-ethics/about/frequently-asked-questions.html>.

¹⁷⁸ Canada, Department of National Defence, *Duty with Honour...9*.

competencies and standards are squadron and wing standards personnel, and 1 Canadian Air Division Standards and Evaluation Teams (SETs). In the SAR community, SARSET is responsible for aircrew standards. Director of Technical Airworthiness and Engineering Support and Air Maintenance SET are responsible for audits of all RCAF accredited maintenance organizations.

RCAF excellence is achieved by seeking continuous improvement through focused and dedicated training and the pursuance of professional self-development.¹⁷⁹ RCAF flying crews are expected to continually improve their competencies, as evidenced by a category upgrade process for each crew position, for example from First Officer to Aircraft Captain, that must be completed within a certain period of time.¹⁸⁰ Focused and dedicated training allows crew members to continually improve their own skills as well as their collective competencies. RCAF flying units designate personnel, responsible to the chain of command, to oversee the training and readiness of flying personnel, and to develop training plans to achieve promulgated minimum flying currency requirements and upgrade timelines.¹⁸¹ These dedicated training personnel and the training norms that they support represent one of the RCAF's normative relational systems. Excellence is further achieved through professional development. The RCAF Aerospace Warfare Centre and RCAF W/C William G. Barker VC Aerospace College, another normative relational systems, offer advanced education and training courses to the RCAF.¹⁸²

¹⁷⁹ Canada, Department of National Defence, "The DND and CF Code of Values and Ethics," last modified 27 August 2014, <http://www.forces.gc.ca/en/about/code-of-values-and-ethics.page>.

¹⁸⁰ Canada, Department of National Defence, *Royal Canadian Air Force Flight Operations Manual 3.4.1.5 Aircrew OJT Timelines*, 2019.

¹⁸¹ Canada, Department of National Defence, *Royal Canadian Air Force Flight Operations Manual Appendix 3.4.1.1.A.3 – Search and Rescue Pilot Qualification and Currency Requirements*, 2019.

¹⁸² Canada, Department of National Defence, "Canadian Forces Aerospace Warfare Centre," last modified 13 March 2019, <http://www.rcaf-arc.forces.gc.ca/en/cf-aerospace-warfare-centre/index.page>; Canada, Department of National Defence, "RCAF W/C William G. Barker VC Aerospace College," last

Teamwork, the third core value of the RCAF relies on trust and cohesion to maximize the contribution of individual skills, ultimately ensuring versatility and flexibility in accomplishing tasks. Although each member has a distinct role, teamwork is exercised daily since flying and maintenance crew are necessarily synergetic. As such, the training and standards authorities are the normative relational systems that monitor and enforce teamwork norms.

Though not explicitly stated as an official RCAF value, it can be concluded that safety is also highly valued within the RCAF. The Flight Safety Program has established designated positions across the CAF, though predominantly in the RCAF, in which trained personnel perform duties related to the promotion of flight safety and the education of personnel, as well as the investigation and analysis of flight safety incidents. Trained flight safety personnel are employed at the CAF's strategic, operational and tactical levels and comprise the normative relational system that creates, enforces and monitors CAF and RCAF flight safety.

Civil SAR operators also employ relational systems to monitor and enforce their norms and values. It is recalled that CHC's Code of Business Conduct, Ethics and Integrity includes both regulative and normative symbolic carriers, as does Bristow's Code of Business Integrity.¹⁸³ As such, the companies' authority systems that enforce the normative symbolic carriers overlap with the power systems that enforce the regulatory symbolic carriers; specifically, the Compliance and Ethics Department and the

modified 6 February 2019, <http://www.forces.gc.ca/en/training-establishments/cf-school-aerospace-studies.page>.

¹⁸³ CHC, "Code of Business Conduct," 31 March 2017, available at <https://secure.ethicspoint.com/domain/media/en/gui/34007/index.html>; Bristow, *Code of Business Integrity*, Houston: 2017.

Compliance Committee, respectively.¹⁸⁴ Bristow's Leadership Charter further encourages leaders to exemplify company norms and values through their daily on-duty conduct.¹⁸⁵ Norms and standards of civil flying operations are enforced by company training, standards and evaluations personnel, while safety is monitored and enforced by designated company safety experts within each company's structured safety system.¹⁸⁶

In sum, normative relational carriers are comprised of authority systems that create, enforce and monitor norms and values. CAF and RCAF authority systems are as numerous and explicit as their symbolic carriers. Civil aviation's normative relational carriers are found to be less well-defined, save in the area of safety norms. As such, the normative relational carriers of the proposed hybrid model of Canadian domestic SAR are assessed as moderately congruent.

Activities

The normative pillar's activities are the ways in which an institution's actions are structured; they are "modes of acting and problem solving" which are "learned and sustained in a certain community."¹⁸⁷ Activity carriers can include routines, roles and jobs, as well as habits and skills.¹⁸⁸ The actors within the RCAF normative relational system, such as the aforementioned training personnel and flight safety experts, each have roles and responsibilities within the relational framework. RCAF normative

¹⁸⁴ *Ibid.*

¹⁸⁵ Bristow, "Vision, Mission, Values," last accessed 8 April 2019, <http://bristowgroup.com/about-bristow/values/>.

¹⁸⁶ Willis Jacobs, "RE: SAR Report," email to author 14 April 2019. Bristow. "Bristow Academy," last accessed 24 April 2019, <http://bristowgroup.com/about-bristow/bristow-academy/>; CHC. "Safety and Innovation," last accessed 24 April 2019 <http://www.chcheli.com/node/7>; Bristow, "Target Zero Safety," last accessed 24 April 2019, <http://bristowgroup.com/about-bristow/safety/>; Cougar Helicopters Inc. "Safety Plan 2019," 8 January 2019.

¹⁸⁷ W. Richard Scott, *Institutions and Organizations...*, 101.

¹⁸⁸ *Ibid.*, 99, 101.

activities that support its normative symbolic carriers are numerous and include routines such as flying procedures and techniques, flying training exercises, written and practical examinations, and reporting and investigating flight safety incidents.

Concerning the RCAF's SAR operations, the normative activities carried out are very well-defined. First, the procedure for tasking RCAF assets by a JRCC, as well as the coordination and execution of rescue procedures are well-established routines, outlined in the Canadian SAR manual.¹⁸⁹ Second, the roles and duties within the relational system are predetermined and efficient. Each position in a JRCC, such as the Officer in Charge and the SAR mission coordinators, has a distinctive role and associated responsibilities. Each crew position in the aircraft, such as the aircraft captain, first officer, and search and rescue technician, has its role, responsibilities and skill requirements. Finally, reaction times for primary squadrons hold a 30 minute reaction time posture during historically peak incident hours, for 40 hours per week. This normative activity is reduced to a two hour reaction time during the remainder of the time.¹⁹⁰

Regarding the countries examined by the Senate Committee, few variances in activities exist with respect to roles and routines. Training exercises, examinations, and flight safety activities resemble those of the RCAF's.¹⁹¹ Civil operators also maintain reaction times, albeit differing between each organization, from five minutes to twenty during the day, with an industry standard of 45 minutes at night. Each of the civilian operators providing domestic SAR in the countries examined by the Senate Committee

¹⁸⁹ Canada, National Defence and Fisheries and Oceans Canada, *CAMSAR...*, 16.

¹⁹⁰ Canada, Senate of Canada, "When Every Minute Counts...", 23-25.

¹⁹¹ Willis Jacobs, "RE: SAR Report," email to author, April 2019.

respond to a government a rescue coordination centre for tasking of SAR missions.¹⁹²

The coordination and execution of SAR missions are predicated on the standard operating procedures outlined in the International Aeronautical and Maritime Search and Rescue Manual (IAMSAR), jointly published by the International Maritime Organization and the International Civil Aviation Organization.¹⁹³ The IAMSAR “provides guidelines for a common aviation and maritime approach to organizing and providing SAR services.”¹⁹⁴

The three IAMSAR volumes outline the global SAR concept, mission coordination, and procedures for mobile rescue units such as aircraft and surface vessels, respectively.¹⁹⁵ As such, in order to maximize effectiveness and interoperability, the guidelines provided in the IAMSAR normalize most activities performed at the RCC’s and in the aircraft, such as tasking procedures, search patterns and hoisting operations.

In brief, the normative pillar’s activities are an institution’s roles and routines.

The most relevant roles and routines in the provision of domestic SAR are those associated with the coordination and the execution of SAR operations, both at the rescue coordination centres and in the aircraft. Though there are minor differences in each organization’s reaction times, indicative of differences the units’ internal standard operating procedures, most roles and routines are in keeping with the IAMSAR’s

¹⁹² Philip Smart “CHC jockeys for ADF-wide SAR/AME contract,” *Australian Defence Magazine* 11 May, 2017. <http://www.australiandefence.com.au/news/chc-jockeys-for-adf-wide-sar/ame-contract>; Ireland, Department of Transport, *Review of the Oversight of Search and Rescue (SAR) Aviation Operations in Ireland: Final Report*, Aerospace Qualified Entity:2018, 8.

¹⁹³ IAMSAR, *International Aeronautical and Maritime Search and Rescue Manual*. 2007: London, IMO.

¹⁹⁴ International Maritime Organization, IMSAR Manual, last accessed 9 April 2019, <http://www.imo.org/en/OurWork/safety/radiocommunicationsandsearchandrescue/searchandrescue/pages/iamsarmanual.aspx>.

¹⁹⁵ IAMSAR, *International Aeronautical...*

guidelines. The normative pillar's activities in the proposed hybrid model of Canadian domestic SAR are consequently assessed as highly congruent.

Artifacts

Artifacts are material objects that are influenced by conscious human activity or the cultural environment.¹⁹⁶ Distinct from artifacts of the regulative pillar, which comply with mandated specifications, artifact carriers of the normative element are objects that meet certain standards or convention. Normative artifacts thus often satisfy the norms of best practices or of compatibility. In the provision of domestic SAR, such artifacts include equipment that ensures the likelihood of mission success and equipment that enhances interoperability with other assets. As each of the organizations being examined provide a service in the same industry, it is logical that artifacts adhere to industry norms and standards. SAR normative artifacts include the aircraft and its associated equipment that gives the asset its capability, and while a comprehensive study of all such artifacts is impractical, the most salient normative artifacts will be examined.

In Canada, the August-Westland AW101, known in the RCAF as the CH149 Cormorant helicopter, serves the primary SAR units as a dedicated SAR asset crewed by two pilots, a flight engineer and two SAR technicians. Artifacts that increase the likelihood of mission success include a triple engine configuration, a flight endurance of over four hours, a rear-ramp door, an ice protection system allowing operations in foul weather, two rescue hoists and space for two stretchers. Mission equipment onboard the helicopter includes a SAR-specific automatic flight control system, a Night Vision Imaging System (NVIS), night auto-hover, one search light, and a self-contained medical

¹⁹⁶ Mark Suchman, "The Contract as Social Artifact." *Law & Society Review* 37, no. 1 (2003): 91-142. <http://www.jstor.org/stable/1555071>.

suite.¹⁹⁷ The second RCAF helicopter providing primary SAR service is the CH146 Griffon. Not designed or acquired by the RCAF as a SAR platform, the Griffon was retro-fitted to fulfill the SAR mandate. As such, it features only a portion of the normative equipment of a primary SAR helicopter, such as dual engines, one hoist, NVIS, a search light and space for one stretcher. It lacks a sophisticated SAR AFCS, FLIR, ice-protection, 4-axis auto pilot with night hover capability and a self-contained medical suite.¹⁹⁸

In Australia, CHC's normative artifacts include the Augusta Westland's AW139 and the AW189 helicopters operated by a crew of four: two pilots, one winch operator and one rescue specialist. The helicopters features two engines, an endurance of over four hours, ice protection, two rescue hoists, night auto hover, NVIS, FLIR, two search lights, external loudspeakers, capability for two to four stretchers, and a self-contained medical equipment.¹⁹⁹ CHC's Sikorsky S-92, providing contracted service to the Irish Coast Guard, is crewed by five personnel, has two engines, a rear ramp, an endurance of over four hours and an ice protection system. SAR equipment includes two hoists, one searchlight, FLIR, satellite communications, space for 3 stretchers and medical equipment.²⁰⁰ The U.K.'s Bristow employs similarly equipped AW189 and the S-92. To fulfill the gap contract they were awarded while the Norwegian government awaits their

¹⁹⁷ Augusta Westland, *Aircraft Flight Manual CH149 Cormorant*. 2008.

¹⁹⁸ Canada, National Defence, *Flight Manual CH146 Griffon C-12-146-000/MB-002*, TASET (Kingston: 2002).

¹⁹⁹ Leonardo Helicopters, "Augusta Westland AW139 Medical and Rescue Services," last accessed 8 April 2019, <https://www.leonardocompany.com/en/-/aw139>; Leonardo Helicopters, "Augusta Westland AW189 Medical and Rescue Services," last accessed 8 April 2019, <https://www.leonardocompany.com/en/products/aw189-1?f=/search>; Canadian Defence Review, "CHC Helicopters," last accessed 8 April 2019, http://www.canadiandefencereview.com/Featured_content?blog/94.

²⁰⁰ Jim O'Neill, "Sneak Peek: Ireland's Newest SAR Helicopter," *Mountain Rescue*, April 2011.

NARWSARH, CHC reconfigured an Airbus AS332L1 helicopter to meet SAR industry norms and standards.²⁰¹ Finally, Cougar provides private SAR services in Canada also using the S-92 with equipment that conforms to industry norms.²⁰²

In sum, the normative pillar's artifacts are an institution's objects that meet certain standards or convention. The most relevant normative artifacts in the provision of domestic SAR are the aircraft and its associated SAR equipment. Though there are minor differences between the RCAF and civilian models, both in the platforms and the equipment, it is logical that artifacts within the same industry would resemble each other closely, as these artifacts contribute to the success of the mission. Also, in the private sector, innovation and quality are vital to remaining relevant and viable in a competitive environment.²⁰³ Consequently, each private SAR provider strives to meet or surpass the capability of its competitors, while exceeding the modernity of the RCAF's Cormorant and Griffon fleets. The normative pillar's artifacts in the proposed hybrid model of Canadian domestic SAR are consequently assessed as highly congruent.

Conclusion

In Scott's model of institutional analysis, the normative pillar influences behaviour with the use of values and norms. The values professed by the civilian aviation companies and the normative systems that enforce them are only partially similar to those of the CAF and the RCAF; conversely the normative activities and artifacts are highly normalized in the SAR industry in order to ensure mission success and compatibility.

²⁰¹ Bristow, "Bristow UK Search and Rescue," last accessed 9 April 2019, <http://bristowgroup.com/uk-sar/>; Heli-hub. "Heli-One Completes AS332L1 SAR Reconfiguration," last amended 5 October 2017, <https://helihub.com/2017/10/05/heli-one-completes-as332l1-sar-reconfiguration/>.

²⁰² Cougar, "What We Do: Search and Rescue," last accessed 9 April 2017, <https://cougar.ca/search-and-rescue.html>; Willis Jacobs, "SAR Report," email to author 7 April 2019.

²⁰³ Mark Robins, "Essential Equipment..." <http://digitaledition.rotorandwing.com/november-december-2017/essential-equipment-search-and-rescue-privatization-and-innovation-driving-quality>.

Therefore, the most noticeable incongruences are the dichotomic professed values of loyalty and courage of the CAF compared to the profitability value of civilian operators, and the robustness of the CAF and RCAF's authority framework compared to those of the civilian industry. It is possible, however, that individuals in each of the civilian and military SAR communities ascribe to shared conceptions that are not explicit in their organizations' declared values. This possibility will be explored within the framework of the cultural-cognitive pillar. Thus, overall congruence within normative pillar is moderate. The risk to legitimacy and recommendations to mitigate the risk will be examined in the final chapter.

CHAPTER 5: THE CULTURAL-COGNITIVE PILLAR

The cultural-cognitive element emphasizes common subjective interpretations, that lead to common beliefs and thought patterns, which, in turn, promote behaviours that are implicitly in concert.²⁰⁴ It is acknowledged that this pillar is difficult to analyze, as it considers internal psychological processes. As the CAF has published its fundamental beliefs, the cultural-cognitive pillar of the CAF's delivery of domestic SAR it is more practicably analyzed than that of civilian-delivered SAR. Thus, in the absence of explicitly publicized cultural schemas, analysis will be based on common behaviour and decisions taken by actors. It will be inferred that, lacking any obvious behaviour-shaping rules or norms, these actions are shaped by common cultural schemas.

Symbolic Carriers

The cultural-cognitive symbolic carriers are the categories, typifications and schemas common to the actors of an institution.²⁰⁵ Shaped by common cultural experiences, these carriers are the standard assumptions held by actors, and the shared lens through which they view the world. These collective beliefs, in turn, guide actors' behaviour. In the CAF, this lens is forged as members undergo common basic military training, building the shared cognitive framework from their initiation to military service. One of the CAF fundamental beliefs is the importance of mission success. This operational focus helps to impart a fighting spirit and the moral, physical and intellectual qualities required to operate in conditions of extreme danger, to endure hardship and to

²⁰⁴ W. Richard Scott, *Institutions and Organizations...*, 67.

²⁰⁵ *Ibid.*, 96.

approach assigned missions with confidence, tenacity and the will to succeed.²⁰⁶ The second fundamental belief is the acceptance of unlimited liability. Military members accomplish their mission with a spirit of self-sacrifice and dedication to duty, without regard for personal fear or danger.²⁰⁷ Each member of the CAF SAR community has undergone the same cultural training that instills these core beliefs. Further socialization occurs within the CAF SAR community, formally during operational SAR training and informally within the social context at the operational SAR units. During this time, the actors' mission is further refined; the mission becomes saving lives. Exemplifying both the CAF's symbolic carriers is the 75 year old para-rescue motto "That Others May Live," as well as the current SAR Tech pledge:

"Without regard for my personal comfort or self-advancement, to the best of my abilities and the limits of my physical and psychological endurance, I solemnly pledge to make every effort to return to safety, those victims of disaster entrusted to my care by the assignment of the mission to which I have consented. These things I shall do: 'That others may live!'"²⁰⁸

It has been noted that the principal public concern with respect to contracting SAR services is the level of service that a commercial SAR provider would deliver, compared to the current military SAR service provided; specifically that commercial providers may weigh the financial costs before deciding whether to undertake a mission.²⁰⁹ The public may consider this potential change in the level of service to be in sharp contrast with military SAR crews who view mission success as a priority, have

²⁰⁶ Canada, National Defence, *Duty with Honour: The Profession of Arms in Canada*, Canadian Defence Academy; 2003, 26.

²⁰⁷ *Ibid.*

²⁰⁸ Para Rescue Association of Canada, "Search and Rescue Technicians and the Para Rescue Association of Canada," last accessed 1 May 2019, <https://pararescue.ca/>.

²⁰⁹ CBC News, "Privatized Search and Rescue Alarms N.L. Officials," 21 July 2011, <https://www.cbc.ca/news/canada/newfoundland-labrador/privatized-search-and-rescue-alarms-n-l-officials-1.1058024>.

accepted unlimited liability, and share a common creed. However, according to the UK's Department for Transport statistics and Ireland's Department of Transport, Tourism and Sport statistics, helicopter SAR responses were similar before and after the shift from military SAR to fully contracted SAR.²¹⁰ Numerous rescues have been conducted by the civil rescue operators in unforgiving weather conditions and challenging sea states, while accolades and awards have been bestowed upon civil rescue companies and crews for their professionalism and bravery.²¹¹ For example, one award "highlights the effort, determination and dedication shown by Bristow...when operating in challenging and unknown environments; all whilst continuing to ensure safety remains at the forefront of every operation."²¹² Another was awarded to a CHC crew who "demonstrated a commitment to saving lives, no matter the danger to themselves;" the award recognizes "aircrews who continue to reflect Sikorsky's mission to bring people home safely everywhere, every time."²¹³ Examples abound.

Civil companies and crews elect to risk personnel and equipment in challenging conditions. Further, civil crews' remuneration is not pursuant to the number of rescues or the level of danger of the missions conducted, rather by government contract and salary. It may thus be inferred, based on the common behaviour and decisions taken by the

²¹⁰ United Kingdom, Department for Transport, "Search and rescue helicopter statistics: data tables (SARH)," <https://www.gov.uk/government/statistical-data-sets/search-and-rescue-helicopter-sarh01>.

Ireland, Department for Transport, Tourism and Sport, "Annual Report," <http://www.dttas.ie/corporate/english/annual-report-0>.

²¹¹ Frank Wolf, "CHC Helicopter Helps Two Ship Rescue Efforts in High Seas Off Norway," *Rotor & Wing International*, 25 March, 2019; David Oliver, "Five Helicopters, 28 Rescuers, 464 Saved: Inside the Viking Cruise Ship Rescue," *USA Today*, 28 March, 2019; Helen Carter and Gwyn Topham, "Passengers Safe after Helicopter Ditches into North Sea," *The Guardian*, 22 October, 2012; HeliHub, "CHC SAR Team Awarded Commendation Award," 20 October 2017.

²¹² Bristow, Bristow Search and Rescue Team Honoured at Awards Ceremony, October 2017, last Accessed 9 April 2019.

²¹³ AirMed&Rescue, "Sikorsky awards CHC crew for heroic acts," 7 March 2019, <https://www.airmedandrescue.com/story/113455/sikorsky-awards-chc-crew-heroic-acts>.

actors providing civil SAR services, that a common schema other than financial gain is present. It should also be noted that SAR operations are not only carried out by primary SAR resources, military or civilian, but also by a number of other actors such as Coast Guards, police agencies, and volunteer civilian associations. Many of these operations are conducted in perilous conditions and to high accolades.²¹⁴ Commander Graham Finn, former national head of Royal Navy search and rescue, has reassured the public that civilian SAR crews are as dedicated to the SAR mission as military crews; “The ethos is saving life.”²¹⁵ It is thus reasonable that the common beliefs and shared logic that influence civil SAR providers’ behaviour, as well as the behaviour of many secondary SAR resources, are similar to those of the CAF SAR operators’ belief in mission success and self-sacrifice.

In sum, it is difficult to determine with certainty the shared internal frameworks that influence common behaviours of SAR operators. The CAF’s common training inculcates its declared fundamental beliefs of primacy of mission and unlimited liability from a member’s initial contact with the military. The CAF SAR community’s primary mission is the saving of lives, which is reflected in the SAR Tech’s pledge. These common schemas result in life-saving action in the face of danger. Where civil SAR operators have diverse backgrounds, their unconfirmed shared schemas must be inferred by their common behaviour, which is similar to that of CAF SAR operators: live-saving action, even in the face of danger. The cultural-cognitive symbolic carriers of the

²¹⁴CBC News. “Houston flooding: Inside look at Coast Guard’s ‘very risky’ rescue operations,” <https://www.cbcnews.com/news/houston-flooding-inside-look-coast-guard-rescue-operations/>; Michael Fraiman, “Royal Canadian Navy to the Rescue,” *Maclean’s*, 20 December 2018, <https://www.macleans.ca/news/canada/the-royal-canadian-navy-to-the-rescue-yes-really/>; Canada, Public Safety, “National Search and Rescue Program: Awards of Excellence -Recipients,” last accessed 9 April 2019, <https://www.publicsafety.gc.ca/cnt/mrgnc-mngmnt/rspndng-mrgnc-vnts/nss/wrds-xcllnc-en.aspx>.

²¹⁵ Steven Morris and Severin Carrell, “Privatisation of UK’s search-and-rescue helicopters...”

proposed hybrid model of Canadian domestic SAR are consequently assessed as highly congruent.

Relational Carriers

Relational systems carry institutions based on networks of social positions that pattern interactions. In the cognitive-cultural element, structural models, such as an organizations' structures, are emphasized. Organizational structures, and the flow of information between them, influence the manner in which actors categorize info.²¹⁶ For the coordination of SAR missions, the NSP defines the cultural-cognitive relational system by designating the SAR Region Commander, responsible to the Commander of Canadian Joint Operations Command, as exercising direct operational control, through the JRCC, of primary CAF SAR units.²¹⁷ This differs from the regulatory relational system which emphasizes command relationships. As mentioned, other actors that may be involved in SAR operations are: secondary CAF SAR units; the Royal Canadian Navy; the Canadian Coast Guard; the Civil Air Search and Rescue Association (CASARA); the Royal Canadian Mounted Police (RCMP); and private SAR resources. These actors make up the cultural-cognitive relational system that organizes the commonly understood flow of information within in the current Canadian SAR system.

As the CAMSAR is based on the IAMSAR, it is unsurprising to observe structural isomorphism between the Canadian SAR structure and structures internationally. Each of the countries examined by the Senate Committee have similarly structured programs, where a federal government department is charged with overall oversight, an RCC is delegated the coordination of SAR operations, and units of practitioners implement the

²¹⁶ W. Richard Scott, *Institutions and Organizations*..., 99.

²¹⁷ Canada, National Defence and Fisheries and Oceans Canada, *CAMSAR*..., 16.

delivery of SAR services.²¹⁸ Thus, specific to the delivery of domestic SAR services, civil SAR providers fit into the national SAR structure just as military primary SAR units traditionally have. In Canada, it is noteworthy that the private SAR provider, Cougar, is periodically requested by JRCC Halifax to assist in east coast and eastern Arctic region rescue missions, confirming the common understanding of the relational system.²¹⁹

In sum, the cognitive-cultural relational system of an institution is the structural organization that influences its actors' classification of info, which, in turn, shapes their behaviour. As per the guidance of the IAMSAR and CAMSAR on the structure of the SAR organization, all SAR resources in a certain area are coordinated by, and reactive to, the same relational system. As such, providers of domestic SAR, civil or military, are reactive to this system in the same manner. The cultural-cognitive relational carriers of the proposed hybrid model of Canadian domestic SAR are consequently assessed as highly congruent.

Activities

Activities are an institution's practices. Cultural-cognitive activities are predispositions and scripts, where a script is a repeated pattern of behaviour in a specific situation.²²⁰ These activities are "habitualized behavior and routines...that reflect the tacit

²¹⁸ Ireland, Department of Transport, *Irish National Maritime Search and Rescue (SAR) Framework*, (Irish Coast Guard: 2010), Art 1.6.2; Bristow Search and Rescue, "UK Search and Rescue Overview and Capability," last accessed 15 Mar 19, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/488008/Clark_Broad_without_videos.pdf; Norway, Ministry of Justice and Police, *The Norwegian Search and Rescue Service*, (PDC Tangen: 2002), 5.; Norway, Ministry of Justice and Police, *The Norwegian Search and Rescue Service*, (PDC Tangen: 2002), 5.

²¹⁹Canadian Defence Review, "Cougar Helicopters," 20 November 2018, last accessed 9 April 2019, http://www.canadiandefencereview.com/Featured_content?blog/129.

²²⁰ Dennis Gioia, and Peter Poole. "Scripts in Organizational Behavior," *The Academy of Management Review* 9, no. 3 (1984): 449-59. <http://www.jstor.org/stable/258285>.

knowledge of actors.”²²¹ They are often the product of learning by experience within the institution. Although there are many scripts that are deeply ingrained in CAF members, such as saluting and adhering to dress standards, those specific to the delivery of domestic SAR can be related to standard operating procedures (SOPs) and skills. The operating procedures and skills learned at the SAR helicopter operational training units and the Canadian Forces School of Search and Rescue, which are then solidified during ongoing training and SAR operations, become innate, contribute to crew harmony and ultimately, ensure success of the mission. For example, the procedure for hoisting a casualty from a marine vessel involves an explicit standard operating procedure followed by all CAF SAR crews operating from the same platform. This procedure also includes tacit physical flying and hoisting skills, learned and practiced within the institution, as well as implicit cooperative procedures between crew members. Cultural-cognitive activities of military SAR crews operating from a different platform diverge in the tacit knowledge and skills of CH149 crews, as evidenced by the requirement for specific, detailed and dedicated training for aircrew converting from one platform to another. Other habitualized routines include weather briefings, Notice to Airmen review, aircraft pre-flight inspections, crew pre-flight and post-flight briefings, daily proficiency flying and ground training , and SAR mission tasking procedures with the JRCC.²²²

Cultural-cognitive activities related to operations, such as pre-flight routines and proficiency training conducted by military SAR units are common to professional aviators internationally. Regarding SAR operations, certain civil SAR operators’ cultural-cognitive activities can differ from the military SAR operators,’ however this

²²¹ W. Richard Scott, *Institutions and Organizations* . . . , 100.

²²² Based on author’s experience of 22 years as a CAF helicopter pilot.

remains mainly a function of platform-specific procedures, as the second volume of the IAMSAR specifies procedures for mobile rescue units such as aircraft.²²³ To further reduce any disparity in activities and to improve best practices, Canada's Cougar Helicopters' SAR crews conduct practical SAR training exercises with the CAF, and Cougar SAR operating procedures are qualitatively commensurate with CAF standards and procedures.²²⁴ Cougar Chief Operating Officer Hank Williams asserts, "The RCAF's SAR standards and procedures are among the very best in the world, so for interoperability missions, it only makes sense that Cougar base its procedures on them."²²⁵

In sum, cultural-cognitive activities are repeated patterns of behaviour in specific situations. The disparity in activity salient to SAR operations between CAF and civil operators is minimal, by virtue of the common guidelines followed by each entity. Additional joint training efforts increase interoperability, further reduce any inconsistency and increase quality by sharing best practices. Consequently, the cultural-cognitive activities of the proposed hybrid model of Canadian domestic SAR are assessed as highly congruent.

Artifacts

In the cultural-cognitive context, artifacts are symbolic objects. These artifacts can represent ideas and relationships where the symbolic presence of the items outweighs their physical substance. Some cultural-cognitive artifacts include pilot and SAR Tech wings worn on a uniform, medals and commendations. Cultural artifacts most salient to

²²³Canada, National Defence and Fisheries and Oceans Canada, *CAMSAR*... 16; Christopher Hill, Cougar and CAF SAR helicopter pilot, interview 17 April 2019.

²²⁴ Canadian Defence Review, "Cougar Helicopters," 20 November 2018, last accessed 9 April 2019, http://www.canadiandefencereview.com/Featured_content?blog/129.

²²⁵ *Ibid.*

the legitimacy of the hybrid SAR model include the SAR Tech's orange flight suit, and the CAF SAR aircraft's yellow and red paint scheme, emblazoned "RESCUE." More than high-contrast beacons that are practical for visibility during SAR events in foul weather, these symbols can be pride-inducing in the operators with whom they are associated. Further, these artifacts are easily recognizable by the public. A recent study shows that Canadians prefer that the Canadian Armed Forces conduct non-combat missions such as humanitarian assistance and search and rescue.²²⁶ The CAF depends on these artifacts to help as strategic instruments to help create a positive connection with the Canadian public and to act as a recruitment tool.²²⁷

In the UK and Ireland, the contracted helicopters display a red and white angled paint scheme, common to many coast guards internationally, with their respective coastguard's livery. The Australian Defence Force's contracted helicopters also display the red and white paint scheme, emblazoned "RESCUE" and the service they support. In all countries examined by the Senate Committee, as well as with Canada's Cougar, the winchmen wear orange flights suits similar to the Canadian SAR Techs.²²⁸

The cognitive-cultural artifacts in an institution are objects whose symbolic presence outweighs their physical substance. In Canada, the most relevant symbolic

²²⁶Canada. Department of National Defence. *Views of the Canadian Armed Forces 2018 Tracking Study: Executive Summary*, Earncliffe Strategy Group Inc. (Earncliffe: 2018), 4.

²²⁷David Pugliese, "Search and rescue may be privatized; Ottawa, aerospace firms to discuss option air force is likely to oppose," *Times Colonist*, 21 July 2011.

²²⁸CHC, "CHC Opens New Search and Rescue Facility in Dublin," last accessed 1 May 2019; Lockheed-Martin, "CHC Brings Storm-Doomed Sailboat Crew to Safety in an S-92 Helicopter," last accessed 1 May 2019, <https://www.lockheedmartin.com/en-us/news/features/2019-features/chc-brings-storm-doomed-sailboat-crew-to-safety-in-an-s-92-helicopter.html>; CHC, "New Australian AW139 Rollout Picks Up Pace," last accessed 1 May 2019, <http://www.chcheli.com/New-Australian-AW139>; Bristow. "UK SAR: Innovative Technology," last accessed 1 May 2019, <http://bristowgroup.com/uk-sar/innovative-technology/>; Cougar, "What We Do: Search and Rescue," last accessed 1 May 2019, <https://www.cougar.ca/what-we-do.html>.

artifacts are those that represent the SAR community to the Canadian public, increasing visibility and connection with the Canadian people and garnering their support. Although company paint schemes used for the private delivery of SAR would represent incongruence, the practice of customizing artifacts shows unity between the government and civil SAR providers; therefore, the cultural-cognitive artifacts of the proposed hybrid model of Canadian domestic SAR are assessed as highly congruent.

Conclusion

In Scott's model of institutional analysis the cultural-cognitive element emphasizes actors' common subjective interpretations based on a cultural framework. These common interpretations lead to common beliefs and thought patterns, which, in turn, shape actors' similar behaviours.²²⁹ The symbolic carriers, standard assumptions held by actors in an institution, can be difficult to ascertain when not explicit; however, the common behaviours of SAR practitioners in both the CAF and the civil companies examined are sufficiently similar that it is inferred that their internal schemas are also congruent. The cultural-cognitive relational carriers, activities and artifacts are also very similar between the institutions, with respect to the delivery of domestic SAR services. Thus, overall congruence within cognitive-cultural pillar is high. The potential risk to legitimacy and recommendations to further mitigate the risk will be examined in the final chapter.

²²⁹ W. Richard Scott, *Institutions and Organizations...*, 67.

CHAPTER 6: LEGITIMACY, RECOMMENDATIONS AND CONCLUSION

American sociologist Mark Suchman's defines legitimacy as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definitions."²³⁰ As discussed in Chapter 2, legitimacy can be assessed by examining consistency within and between the three pillars. Incongruence within the carriers of a pillar may hinder the coherence of that element. Incongruence may additionally cause friction between the elements, since carriers of one element should support and enable the other elements. This friction within and between the elements can cause inconsistent, disparate or undesirable behaviours, which can lead to generalized perception or assumption, by the public or by members within the institution, that the actions of the entity are not desirable or appropriate.²³¹ That is, friction within and between the elements can incite a loss of external legitimacy, as perceived by the Canadian public, or internal legitimacy, as perceived by CAF members.

It is continued to be assumed that the current CAF SAR model enjoys both internal and external legitimacy. Consequently, legitimacy of the proposed private-public hybrid model of SAR delivery in Canada will be evaluated by assessing the civil model's consistency with, and support to, the CAF existing CAF model. First, the carriers within the pillars will be assessed for alignment, as depicted in Annex A; an analysis will then examine the extent to which carriers of one pillar enable the carriers of the other pillars. Misalignment within or between pillars will be assessed as a risk to legitimacy. Finally,

²³⁰Mark Suchman, "Managing Legitimacy: Strategic and Institutional Approaches," *The Academy of Management Review*, 20, no. 3 (1995), 574.

²³¹ W. Richard Scott, *Institutions and Organizations...*, 71.

recommendations will be made in order to improve alignment within and between the elements, ultimately leading to increased legitimacy and stability of the proposed hybrid model of domestic SAR delivery in Canada.

Risks to Legitimacy and Recommendations

Legitimacy can be assessed by examining alignment within and between the three pillars, each providing a unique basis for acceptability and credibility. It is recalled from Chapter 2 that legitimacy in the regulative element is characterized by the legal or quasi-legal establishment and operation of the institution. The normative element emphasizes legitimacy based on conformity to values and norms. Finally, legitimacy in the cultural-cognitive element stems from a preconscious common operating picture.²³²

A study of the carriers within the Senate Committee's proposed hybrid model for SAR delivery in Canada revealed incongruence of carriers between the CAF and civil model of SAR delivery. Yet, incongruence within the individual carriers does not necessarily illicit discord within or between the pillars. That is, carriers of the civil SAR organizations may differ from CAF carriers while still enabling and supporting the aim of each element. If carriers support their pillar and if the pillars are aligned, the institution enjoys stability and is enduring. Misalignment leads to confusion and conflict, and risks decreasing legitimacy.²³³ Therefore, if incongruence is shown to upset the objective of an element, the incongruence will be assessed as a risk to legitimacy.

Regarding the proposed hybrid model for domestic SAR in Canada, the military and civilian carriers within the regulatory element were assessed as moderately congruent. The first incongruence is in the area of mandated equipment. As discussed in

²³² W. Richard Scott, *Institutions and Organizations*..., 71.

²³³ *Ibid.*

Chapter 3, civil artifacts are not subject to mandated specifications under the DND Technical Airworthiness Program. Yet, most are subject to TC safety specifications that comply with manufacturers' or TC airworthiness standards. These regulative incongruences do not jeopardize the legal establishment and operation of the proposed hybrid model, thus do not indicate dissonance within the element. Nor does this difference in regulation threaten the aims of the other pillars. Specifically, it does not endanger conformity to values and norms, or indicate a variance in preconscious common operating pictures. Consequently, this difference in carriers does not cause misalignment within or between the pillars. The risk to the legitimacy of the hybrid model posed by this incongruence is thus assessed as negligible.

The second incongruence discovered within the regulative pillar is the regulative process regarding conduct of personnel. CAF regulations are very explicit in delineating: the boundaries of acceptable behaviour for CAF members; the power system in place to enforce these regulative symbolic carriers; and the sanctioning activities for non-compliance. Civil operators are not subject to CAF and RCAF regulations, creating an immediate incongruence. Further, the corporate codes of conduct to which the civil operators examined are bound, the power systems that enforce them, and the possible sanctions for non-compliance are not as explicit or robust as the CAF's.²³⁴ These inconsistencies in the symbolic, relational and activity carriers of the regulatory element jeopardize the semi-legal establishment and operation of the proposed hybrid model, potentially leading to a perception or assumption, by members within the institution and

²³⁴ Bristow, "Vision, Mission, Values," last accessed 8 April 2019, <http://bristowgroup.com/about-bristow/values/>; Bristow, *Code of Business Integrity*, Houston: 2017; CHC, "Agreement of Termination of Employment—Annex 2: Code of Ethics," 2011, <https://sec.report/Document/0001193125-12-015597/d245302dex1030.htm>.

by the Canadian public, that the actions of the entity are not desirable or appropriate. Thus, internal and external legitimacy of the regulative element is at risk. In order for the hybrid model to gain internal and external legitimacy, civilians who provide a domestic SAR service on behalf of DND must comport themselves in a manner that is credible and acceptable to the CAF and to the parent population. This includes acceptable conduct on and off duty as well as credible, safe and effective flying and maintenance operations. It is therefore recommended that DND carefully review the regulatory process of potential civil partners to ensure the contracting of a company that closely complies with CAF regulations, and that employ an engaged and active power system with influential sanctions. Further, the contract for civil SAR services should make explicit mention of professional conduct and repercussions for breach of conduct expectations. Finally, any additional expectations not included in the civil operators' code of conduct but that are important to the CAF, such as expectations with respect to technical proficiency, to the use of alcohol, or to harmful or inappropriate sexualized behaviour must be considered in the contracting process.

The final discrepancy within the regulative pillar is the lack of Canadian civil aviation regulations governing civil SAR flying operations, specifically licensing and training protocols. In contrast to the RCAF Flying Operations Manual, there currently exists no TC SAR licensing protocols, aside from a few regulations governing SAR-related tasks such as hoisting and night vision goggle operations.²³⁵ This inconsistency within regulatory symbolic carriers jeopardizes the legal establishment and operation of the proposed hybrid model, potentially leading to a perception or assumption by members

²³⁵ Transport Canada, *Canadian Aviation Regulations Part V*, last accessed 5 April 2019, <https://www.tc.gc.ca/eng/acts-regulations/regulations-sor96-433.htm#v>.

within the institution and by the Canadian public that the civilian SAR operations contracted by the government are not reliable. Thus internal and external legitimacy are at risk. In order to assure legitimacy of the hybrid model, it is recommended that the civil operator chosen to fulfill the hybrid SAR mandate establish training, currency and category upgrade requirements that closely resemble those of the CAF. It is also recommended that TC be engaged to establish civil SAR regulations and guidelines, similar to those established by the Irish Civil Aviation Authority, the Australian Civil Aviation Safety Authority, and UK's Civil Aviation Authority.

Within the normative element, the military and civilian carriers of proposed hybrid model were assessed as moderately congruent. The most significant incongruence was found to be between the expressed values of the civil SAR operators and those of the CAF and RCAF. Many values are highly consistent, with the important exception of the civil operators' explicit and implicit emphasis on profitability, compared with the CAF's values of loyalty, courage and the acceptance of unlimited liability. Although valuing profits did not translate to a noticeable change in the SAR service when the countries studied converted from military to civilian SAR, this inconsistency within normative symbolic carrier jeopardizes the conformity of values and norms within the proposed hybrid model, potentially leading to a perception or assumption by members within the institution and by the Canadian public, that the motivations and actions of the civil SAR provider are not in the CAF's or the public's best interest. Thus, internal and external legitimacy of the regulative element is at risk.

Additionally, this incongruence could affect alignment between the pillars. This dissimilarity within the symbolic normative carriers does not jeopardize the legal

establishment and operation of the Canadian domestic SAR institution, which is the focus of the regulative pillar; however, it does not support the cultural-cognitive pillar. Specifically, it may incite dissonance between the preconscious common operating pictures of civil and military SAR leaders and operators. Whereas, in the countries studied by the Senate Committee, there has been no indication of contrary behaviour in SAR operations due to a civil emphasis on profitability, this discrepancy in symbolic relational carriers jeopardizes the cultural-cognitive pillar's common framework shared by actors. Differences in preconscious operating pictures can lead to differences in behaviours, namely the risk civil SAR providers are willing to take in order to complete a mission. Thus, this misalignment between the pillars threatens the overall legitimacy of the hybrid model.

It is first recommended that the civil SAR provider chosen for the hybrid model exhibit implicit and explicit values that most closely align with those of the CAF and the RCAF, and whose leadership and authority system exemplify and encourage the desired values. It is further recommended that the civil SAR provider chosen for the hybrid model be financial stable; that is, its financial system must be resilient to stress to ensure decisions remain based on values common to the CAF SAR system rather than on profitability. Lastly, to ensure compatibility and mission success, it is essential that the civil SAR provider chosen operate an aircraft that is appropriate for the mission and the environment in which it will be tasked, and that the provider meet or improve on the CAF SAR reaction time.

Finally, legitimacy in the cognitive-cultural element stems from a preconscious common operating picture.²³⁶ Internal frameworks and assumptions held by SAR practitioners in both the CAF and the civil companies examined are difficult to determine, however their common behaviours are sufficiently similar that it is inferred that their internal schemas are congruent, as are all the carriers in the cultural-cognitive element. Thus, Chapter 5 revealed that overall congruence within the cognitive-cultural pillar of the proposed hybrid model of SAR delivery is high. In order to ensure low risk to internal and external legitimacy within the cognitive-cultural element, it is recommended that the civil SAR provider chosen for the hybrid model has previously demonstrated prioritization of mission success in the face of danger, ensure their SAR procedures and skills are commensurate with the CAF's and display an aircraft paint scheme and uniform that are recognizable and familiar to the Canadian public.

In sum, incongruences revealed in the analysis of the hybrid model's three pillars were assessed for jeopardizing legitimacy. Organizational theorists Deephouse and Suchman suggest that institutions need not play a passive role with respect to their own legitimacy. Institutions may be active in creating legitimacy by instigating change in areas of risk.²³⁷ Recommendations have therefore been made for DND and the CAF so that they may engage in an active, educated role in assuring the legitimacy of their SAR model, should they decide to implement the recommendations of the Senate Committee.

²³⁶ W. Richard Scott, *Institutions and Organizations...*, 71.

²³⁷ David Deephouse and Mark Suchman, "Legitimacy in Organizational Institutionalism." In *The SAGE Handbook of Organizational Institutionalism*, 49-77. London: SAGE Publications Ltd, 2008, 54.

Conclusion and Recommendations for Further Research

The Standing Senate Committee for Fisheries and Oceans has recommended institutional change in the CAF's delivery of domestic SAR. Using American sociologist W.R. Scott's model for institutional analysis and international models of alternative service delivery, the hybrid option of SAR delivery was analyzed. Incongruences between the CAF and civil models were discovered then assessed for jeopardizing internal and external legitimacy. Finally, recommendations were made to improve congruence, assuring the legitimacy and, ultimately, the stability of the hybrid model of domestic SAR delivery in Canada.

Through the analysis of the three institutional pillars, it has been shown that a public-private partnership of SAR delivery is a legitimate option that can be reinforced by implementing a few simple recommendations. In this analysis, the pillars were afforded equal weight; however, W.R. Scott considers legitimacy in the cultural-cognitive element the deepest-level of legitimacy as it is based on a preconscious common worldview. It is recalled that this analysis of the CAF and civil SAR models revealed high congruence and legitimacy within the cultural-cognitive element. Also, incongruences within the remaining two pillars were chiefly due to military-specific carriers such as military orders and ethos, and characteristics specific to the profession of arms.

In many nations, private operators can successfully deliver domestic SAR services; consequently, it is clear that SAR operations must not necessarily be conducted by military forces. In fact, it is suggested, based on the high congruence of the cultural-cognitive element, that the delivery of SAR by the CAF has greater commonality with the civil delivery of SAR than with any other Canadian military operation. Thus, it is proposed that the international SAR community is an institution of its own, regardless of

parent organizations, civil or military. It is therefore recommended that further research be conducted to determine if the CAF is still the best organization to deliver domestic SAR in Canada, whilst the hybrid model is pursued in accordance with the legitimacy risk mitigation actions recommended in this study.

ANNEX A

Carrier Congruence

	REGULATIVE	NORMATIVE	CULTURAL-COGNITIVE
SYMBOLIC CARRIERS	<p>Rules, Laws</p> <ul style="list-style-type: none"> • QR&O, DAOD • National Defence Flying Orders, • Flight Operations Manual • Technical Airworthiness Orders • <i>Labour Code, Code of Conduct</i> • <i>Civil Aviation Regulation, Flying and Technical</i> 	<p>Values, Expectations</p> <ul style="list-style-type: none"> • CAF ethical principles • CAF core values • RCAF core values • Profession of Arms • Flight Safety • <i>Company values</i> • <i>Profitability</i> • <i>Canadian civil aviation values</i> 	<p>Categories, Typifications, Schema</p> <ul style="list-style-type: none"> • Mission success • Self-sacrifice • “That Others May Live” • <i>Inference of prioritization of mission success, based on action</i>
RELATIONAL CARRIERS	<p>Governance & Power systems</p> <ul style="list-style-type: none"> • Chain of Command • <i>Labour Program, Management, TC Aviation Enforcement Branch</i> • <i>Compliance and Ethics Department, Compliance Committee</i> 	<p>Authority Systems</p> <ul style="list-style-type: none"> • Defence Ethics Program authority, Chain of Command • Training, Standards personnel • Professional development • Flight Safety personnel • <i>Compliance and Ethics Department, Compliance Committee</i> • <i>Training, standards personnel</i> • <i>Company safety personnel</i> 	<p>Organizational Structure</p> <ul style="list-style-type: none"> • National SAR Program based on <i>IAMSAR</i> • <i>National SAR Program based on IAMSAR</i>
ACTIVITIES	<p>Monitoring, Sanctioning</p> <ul style="list-style-type: none"> • Disciplinary action • Administrative action • Technical sanctions • Open trial • • oral counseling, a monetary penalty, a document suspension, or prosecution • <i>Disciplinary action</i> • <i>Dismissal from company</i> • <i>Corporate Offender’s List</i> 	<p>Jobs, Roles, Routines</p> <ul style="list-style-type: none"> • Roles, procedures based on <i>IAMSAR</i> • Training exercises, examinations • Flight safety activities • Reaction time • <i>Roles, procedures based on IAMSAR</i> • <i>Training exercises, examinations</i> • <i>Flight Safety activities</i> • <i>Reaction time</i> 	<p>Scripts, Skills</p> <ul style="list-style-type: none"> • Pre-flight procedures • In-flight procedures and skills based on <i>IAMSAR</i> • <i>Pre-flight procedures</i> • <i>In-flight procedures and skills based on IAMSAR</i>
ARTIFACTS	<p>Mandated Objects</p> <ul style="list-style-type: none"> • DND Airworthiness: parts, systems, tools, petroleum, life-saving equipment • <i>TC: parts, systems,</i> • <i>OEM: life-saving equipment</i> 	<p>Conventional Objects</p> <ul style="list-style-type: none"> • Aircraft • SAR Equipment • <i>Aircraft</i> • <i>SAR Equipment</i> 	<p>Symbolic Objects</p> <ul style="list-style-type: none"> • Aircraft paint scheme • Uniforms • <i>Aircraft paint scheme</i> • <i>Uniforms</i>

Legend

High Congruence



Moderate Congruence



Low Congruence



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