



Australian Government  
Department of Defence

# The Four Aspects of Joint

A Model for Comparatively Evaluating  
the Extent of Jointness in Armed Forces



**Joint Studies Paper Series No. 2**

Aaron P. Jackson



*This page is intentionally blank*

# **THE FOUR ASPECTS OF JOINT**

## **A MODEL FOR COMPARATIVELY EVALUATING THE EXTENT OF JOINTNESS WITHIN ARMED FORCES**

---

by  
Aaron P. Jackson

© Copyright Commonwealth of Australia 2018



This publication, excluding the Commonwealth Coat of Arms and the Department of Defence logo, is licensed under a Creative Commons Attribution – 4.0 International licence. The terms of this licence can be accessed at <https://creativecommons.org/licenses/by/4.0/>. If you reproduce all or part of this work you must give appropriate credit to the authors and the Commonwealth and provide a link to the licence.

You may attribute this work as follows: Aaron P. Jackson, 'The Four Aspects of Joint: A Model for Comparatively Evaluating the Extent of Jointness within Armed Forces', *Joint Studies Paper Series*, No. 2 (Canberra: Defence Publishing Service, 2018).

The views expressed in this publication are the authors' own and do not necessarily reflect the views or policies of the Australian Government or the Department of Defence, or any part thereof. While reasonable care has been taken in preparing this publication, to the extent permitted by law, the Commonwealth of Australia and the authors disclaim all liability howsoever caused (including as a result of negligence) arising from the use of, or reliance on, this publication. By accessing this publication, users are deemed to have consented to this condition and agree that this publication is used entirely at their own risk.

National Library of Australia – Cataloguing-in-Publication entry

Author: Jackson, Aaron P. 1982-  
Title: The Four Aspects of Joint: A Model for Comparatively Evaluating the Extent of Jointness within Armed Forces  
Series: Joint Studies Paper Series No. 2  
ISSN: 2208-6013 (printed version)  
2208-6021 (online version)  
Subjects: comparative studies  
history, military  
joint military activities  
military, Australia  
military, Canada  
military, United Kingdom  
military, United States

This volume has been peer reviewed.

Military theory is an inter-disciplinary field of intellectual endeavour which is often confused with military thought, military doctrine and even military history. Unlike military thought (individual ideas on war which may be abstract); military doctrine (institutionalised knowledge about war); and military history (narratives of specific military historical events), military theory is normative and explanatory in the Greek tradition of *theoria* (contemplation). Military theory takes the form of a critical and systematic inter-disciplinary reflection into the phenomena of war as related to practice. It embodies a quest to interpret and rationalize the inner structures and constant interactions involved in military activity and to introduce these into the corpus of professional knowledge to improve understanding of war and warfare. As Carl von Clausewitz notes, the aim of military theory is to enlarge the range of human vision through interpreting action drawn from the rich soil of experience.

Aaron Jackson's study is a timely exercise in theoretical analysis which seeks to illuminate the state of contemporary joint military activities in several English-speaking Western militaries. Dr Jackson posits a theoretical model of joint military activities based on four pillars, operational, organisational, educational, and doctrinal. In doing so, he challenges what he calls the 'common historical narrative' of joint military activities as having deep roots in the history of warfare since antiquity—a scholarly consensus that has been in place since the 1990s. Not all readers will agree with this approach, nor will others share his parallel belief that that joint warfare theory today is where maritime warfare theory was in the mid-nineteenth century. Yet, it is a truism that only through the collision of ideas can scholarly progress be made in any field of study.

In place of the explanatory role of historical narrative, Dr Jackson proposes an alternative thesis for the evolution of jointness based on ideas and imperatives drawn mainly from the field of contemporary organisational culture. Again, it is not necessary to agree with Dr Jackson's theoretical approach in order to appreciate his serious attempt to further illuminate our understanding of joint military processes—a field of study that remains immature in the Western profession of arms. The four pillared theoretical model of comparative assessment applied to highlight the state of jointness in the Australian, American, British, and Canadian armed forces presented in this study admirably demonstrates the complexities involved in developing contemporary joint processes. More generally, this monograph highlights the multifaceted challenges that lie ahead for the English-speaking Western profession of arms as it seeks to evolve from joint toward even greater forms of integration and unification to meet the growing demands of twenty-first century warfare on land, air and sea as well as in the emerging domains of space and cyber.

**Professor Michael Evans**  
General Sir Francis Hassett Chair of Military Studies  
Australian Defence College

January 2018



# Contents

---

Foreword .....	iii
Author biography .....	vii
Abbreviations.....	ix
CHAPTER 1:	
INTRODUCTION .....	1
'Theory of joint military activities' defined.....	2
Notes .....	4
CHAPTER 2:	
RECONSIDERING THE HISTORY OF JOINT MILITARY ACTIVITIES .....	5
The common historical narrative.....	6
Reconsidering the narrative.....	9
Two extrapolations .....	13
Notes .....	16
CHAPTER 3:	
A THEORY OF JOINT MILITARY ACTIVITIES .....	19
The four aspects of joint .....	19
The joint spectrum: from non-joint to very joint armed forces .....	21
The optimum extent of joint reforms .....	22
Notes .....	26
CHAPTER 4:	
EVALUATING JOINTNESS WITHIN FOUR WESTERN ARMED FORCES .....	29
Q1: Are there permanent joint operational command and control structures and joint operational organisations? .....	30
Q2: What percentage of operations are joint? .....	32
Q3: Are there permanent joint organisational structures that are not directly operational?.....	38
Q4: To what extent has duplication between each service been minimised through the creation of joint organisations? .....	41
Q5: Is joint professional military education for O4 and above common? .....	44
Q6: What percentage of professional military education institutions offering courses for O4 and above are joint?.....	45
Q7: Does the armed force have a comprehensive series of joint doctrine publications?.....	47
Q8: Does the armed force have an organisation explicitly tasked with developing and maintaining joint doctrine?.....	48
Summary and comparisons .....	49
Notes .....	54
CHAPTER 5:	
CONCLUSION.....	61
Bibliography.....	65

Joint Studies Paper Series:

About the series.....77

Call for submissions .....77

Papers in the series.....78

### List of figures

2.1: The rapid growth in the need for joint operations in the last 100 years or so..... 14

3.1: The aspects of jointness imagined as a spectrum, showing the relative position and characteristics of a non-joint force and a very joint force .....22

3.2: There may be an optimum extent of joint reforms, beyond which additional reforms are detrimental .....24

4.1: The geographic areas of responsibility of the six US Unified Combatant Commands .....31

4.2: Alternate command methods: direct (top) and component (bottom).....37

4.3: Comparative extent of jointness in four armed forces.....50

### List of tables

4.1: Summary by military of answers to questions about the four aspects of jointness .....30

4.2: Summary by military of operation names and chains of command (where known), as at 1 July 2015 .....33

4.3: Institutions offering professional military education courses for O4 and above.....45



## Author biography

---

Dr Aaron P. Jackson is Joint Operations Planning Specialist in the Joint and Operations Analysis Division of Defence Science and Technology Group, where he provides social sciences support to Australian Defence Force (ADF) joint planning and evaluation. Previously he was a doctrine developer at the ADF Joint Doctrine Centre, where he specialised in developing executive, operations and planning series doctrine. He was project manager or lead author of six joint doctrine publications and he contributed to the development of over 20 others, as well as to an interagency publication developed in collaboration between Defence and the Australian Federal Police. In addition to his civilian appointments Aaron has served in the Australian Army Reserve since 2002. He has deployed as a civilian on Operation Accordion (Middle East region) and as a military officer on Operations Astute (Timor Leste) and Resolute (Australian border security).

Aaron holds a Doctorate of Philosophy (International Relations) and he has previously held visiting appointments at Flinders University, Griffith University and the University of New South Wales at the Australian Defence Force Academy. This paper was produced in part during his visiting period at the latter of these institutions. He is author of *The Roots of Military Doctrine: Change and Continuity in Understanding the Practice of Warfare* (US Army Combat Studies Institute Press, 2013); *Doctrine, Strategy and Military Culture: Military-Strategic Doctrine Development in Australia, Canada and New Zealand, 1987-2007* (Canadian Forces Aerospace Warfare Centre, 2013); and numerous peer reviewed journal articles and other academic papers.



## Abbreviations

---

ADDP	Australian Defence Doctrine Publication
ADF	Australian Defence Force
ADFWC	Australian Defence Force Warfare Centre
ADOD	Australian Department of Defence
AJP	Allied Joint Publication
CACSC	Canadian Army Command and Staff College
CAS	close air support
CFHS	Canadian Forces Health Service
CJOC	Canadian Joint Operations Command
CTF	combined task force
DLA	Defense Logistics Agency
EEZ	exclusive economic zone
EU	European Union
HADR	humanitarian assistance and disaster relief
HQJOC	Headquarters Joint Operations Command
IISS	International Institute for Strategic Studies
ISAF	International Security Assistance Force
JDN	joint doctrine note
JDP	Joint Doctrine Publication
JITF	joint interagency task force
JPME	joint professional military education
KFOR	Kosovo Force
MILPERSGEN	Military Personnel Generation
MNF-I	Multi-National Force—Iraq
MONUSCO	United Nations Organization Stabilization Mission in the Democratic Republic of the Congo
NATO	North Atlantic Treaty Organization
PJHQ	Permanent Joint Headquarters
PLA	People’s Liberation Army
PME	professional military education
UAV	unmanned aerial vehicle
UK	United Kingdom
UKMOD	United Kingdom Ministry of Defence
UN	United Nations
UNFICYP	United Nations Peacekeeping Force in Cyprus
UNMIL	United Nations Mission in Liberia
UNMISS	United Nations Mission in the Republic of South Sudan

US	United States
USAAF	United States Army Air Force
USAF	United States Air Force
USAFRICOM	United States Africa Command
USCENTCOM	United States Central Command
USDOD	United States Department of Defense
USEUCOM	United States European Command
USSOCOMD	United States Special Operations Command
USSOUTHCOM	United States Southern Command

INTRODUCTION

---

Today, all Australian Defence Force (ADF) operations are conducted jointly. Each of the three services fulfils a raise, train and sustain role that is vitally important; however, for operational deployment, command of forces from all three Services is assigned to the Chief of Joint Operations.<sup>1</sup> This command arrangement has been in place for long enough that it is easy to forget that it was not actually very long ago—barely forty years, in fact—that the ADF itself did not exist as a single, legally recognised organisation, and that instead each of the three services operated separately from one another. Only after the 1976 implementation of the ‘Tange reorganisation’ was the ADF formed as a legally recognised organisation, with reforms to joint command arrangements following progressively over the next three decades.<sup>2</sup>

The establishment of similar joint organisations in other Western militaries has also occurred relatively recently. For example, it has been just over thirty years since the US Congress passed the Goldwater-Nichols Department of Defense Reorganization Act in 1986. This Act was designed to balance single service interests with joint operational and organisational imperatives and is generally credited with being the catalyst for major joint reforms within the US Department of Defense (USDOD). Since then, numerous joint organisations and structures have been formed within the USDOD, joint postings have become more common and, beginning with the 1990-91 Gulf War, joint military operations have been the norm rather than the exception.<sup>3</sup>

Yet underlying these major joint reforms there remains a theoretical void. Put bluntly, the theory of joint military activities has not kept pace either with practice or with the development of theory for military activities in the maritime, land, air or even space domains. A telling indicator of this void is the scope of Elinor C. Sloan’s textbook *Modern Military Strategy: An Introduction*.<sup>4</sup> This book discusses developments in strategic theory since the end of the Cold War in the areas of conventional land power, irregular warfare, sea power, air power, space power, nuclear power and cyber warfare. Discussion of joint military activities is rolled into the same chapter as ‘military transformation’ and the theories discussed, which include the revolution in military affairs, network centric operations and effects based operations, all seem to fall on the transformation side of the divide. Almost all are conceptual in nature and none exclusively pertain to the conduct of joint military activities. Sloan has most likely omitted a discussion of theories of joint military activities for one simple reason: no notable theories exist for her to discuss.

The aim of this paper is to take a step towards filling the void. It will do this by elaborating a model that may be used as the basis for developing a more fundamental understanding of the nature of joint military activities. It will then apply this model to comparatively evaluate the extent of jointness in four Western militaries: the US; Britain; Australia; and Canada. To achieve this, the paper includes three substantial chapters.

Chapter Two posits that a common historical narrative underpins the contemporary practice of jointness and that this narrative has been used to substitute for theory in

justifying the need for jointness and in explaining how it might be most effectively implemented. Given its importance, the narrative is elaborated. Subsequently, it is observed that this narrative has been based on the collective analysis of a series of significant events, particularly major engagements during wartime. A reconsideration of the history of joint military activities is undertaken from a different perspective, that of organisational culture, leading to the identification of three major aspects of the common historical narrative that ought to be reconsidered. In turn, this reconsideration enables two extrapolations to be made, which pertain to the historical scope and organisational extent of jointness. These extrapolations are detailed in the final section of this chapter and are important to the subsequent development of this paper's theoretical model.

The model itself is detailed in Chapter Three. The model, which is labelled 'the four aspects of joint', posits that jointness consists of four major aspects: operational; organisational (or structural); educational; and doctrinal. After explaining each of these aspects, this chapter proposes how the model may be applied as a methodology for evaluating the jointness or otherwise of armed forces. It does this by displaying each aspect on a spectrum and hypothesising what a non-joint force at one end of the spectrum, and a very joint force at the other, may look like. Finally, the existence of a theoretical threshold beyond which joint reforms may be detrimental to armed forces, rather than enabling them, is discussed and the ramifications of this threshold examined.

Chapter Four asks how armed forces compare to the model proposed in Chapter Three, investigating this through a comparative examination of the armed forces of the US, Britain, Australia and Canada. Two simple indicative research questions are explored for each of the four aspects of joint, and together the assessments against each question gives a rudimentary idea about the extent of jointness within each of these four armed forces. The chapter concludes by examining the results of this comparison in more detail, identifying several areas where each of the four militaries could learn from the experiences of the others to further the effectiveness of their own joint reforms.

In the conclusion, several areas for further research are identified. It is hoped that this paper will serve to prompt the further development of joint military activities theory, either through the exploration of the additional research areas discussed in its conclusion or by encouraging the development of alternative theories.

## 'Theory of joint military activities' defined

To enable discussion in the rest of the paper, the term 'theory of joint military activities' needs to be defined. This is achieved by looking at the term's major components, beginning with 'theory'.

For the purposes of this paper a 'theory' is defined as 'a system of ideas intended to explain something'.<sup>5</sup> In this case, the 'something' is joint military activities and the development of a theory explaining them is important because of the vital role theory plays in developing a meaningful understanding of why phenomena occur. In particular, analysis that accompanies the development of theory promotes the development of deeper perceptions than historical or contemporary observations alone can offer, even when theoretical developments are based primarily on these observations. In Carl von Clausewitz's words, theory 'can give the mind insight into

the great mass of phenomena and of their relationships, then leave it free to rise into the higher realms of action'.<sup>6</sup> Samuel P. Huntington has echoed this sentiment:

*Understanding requires theory; theory requires abstraction; and abstraction requires the simplification and ordering of reality. ... Obviously, the real world is one of blends, irrationalities, and incongruities: actual personalities, institutions, and beliefs do not fit into neat logical categories. Yet neat logical categories are necessary if man is to think profitably about the world in which he lives and to derive from it lessons for broader application and use.*<sup>7</sup>

The benefit of the development of a theory of joint military activities is that such a theory is likely to provide a mechanism for armed forces to reach a deeper understanding of the nature of jointness, why it is important and how to implement it. From this deeper understanding, guidance may be derived to enable the more effective conduct of joint military activities.

Another key term that needs to be defined is 'joint'. In the contemporary military context joint is defined as 'activities, operations and organizations [sic] in which elements of at least two services participate'.<sup>8</sup> The key word in this definition is 'services', which refers to armies, navies, air forces and marine corps (and perhaps, as has been argued by a minority of authors, coast guards). It is noteworthy that the definition of joint is service-centric and is not based on environmental mediums or domains (land, sea, air, space, etc.). This definition therefore determines that jointness is institutional, being based on cooperation between services regardless of whether their activities are taking place in a single domain or in many domains. Of note, the term 'joint' should not be confused with 'combined', which refers to the services of two or more countries working together, or with 'interagency' or 'multiagency', which refer to different agencies of the same government working together (these four terms are sometimes used interchangeably, which is technically incorrect).<sup>9</sup>

Accordingly, the term 'joint military activities' as used in this paper refers to a broad range of activities in which more than one service participates. Such activities include joint military campaigns and operations, in both warlike and non-warlike conditions, however several other less obvious joint endeavours also fall within the purview of this term. These endeavours include the establishment and perpetuation of peacetime joint organisational structures within an armed force, the conduct of joint professional military education and training courses and the production of joint doctrine.

At this juncture it is pertinent to observe that due to the broad scope of activities covered by the term 'joint military activities', a theory of joint military activities is not synonymous with operational art. Operational art is 'a component of military art concerned with the theory and practice of planning, preparing, conducting, and sustaining major operations and campaigns aimed at accomplishing operational or strategic objectives in a given theatre'.<sup>10</sup> This definition addresses a much narrower range of endeavours than the definition of joint military activities used in this paper, hence operational art is applicable to only one aspect of the total sphere of joint military activities—campaigns and operations. Although campaigns and operations are a vitally important joint military activity, they are not the only significant joint military activity. Hence, operational art does not alone provide a broad enough outlook to be considered as a comprehensive theory of joint military activities.

## Notes

<sup>1</sup> Australian Defence Force (ADF), Australian Defence Doctrine Publication (ADDP) 00.1—*Command and Control*, ed. 1 (Canberra: Australian Defence Publishing Service, 2009), chap. 4.

<sup>2</sup> David Horner, *Making the Australian Defence Force*, The Australian Centenary History of Defence Vol. 4 (South Melbourne: Oxford University Press, 2001), pp. 46-49.

<sup>3</sup> For a detailed overview of the development and objectives of the Goldwater-Nichols Act see: James R. Locher, *Victory on the Potomac: The Goldwater-Nichols Act Unifies the Pentagon* (College Station: Texas A&M University Press, 2002).

<sup>4</sup> Elinor C. Sloan, *Modern Military Strategy: An Introduction* (London and New York: Routledge, 2012), pp. 49-64.

<sup>5</sup> Catherine Soanes & Angus Stevenson (Eds.), *Oxford Dictionary of English*, 2nd ed., revised (Oxford: Oxford University Press, 2005), p. 1829.

<sup>6</sup> Carl von Clausewitz, *On War*, edited and translated by Michael Howard & Peter Paret (Princeton NJ: Princeton University Press, 1976), p. 578.

<sup>7</sup> Samuel P. Huntington, *The Soldier and the State: The Theory and Politics of Civil-Military Relations* (Cambridge MA: Harvard University Press, 1957), p. vii.

<sup>8</sup> North Atlantic Treaty Organization (NATO), *NATO-Russia Glossary of Contemporary Political and Military Terms* (Brussels: NATO-Russia Joint Editorial Working Group, undated, promulgated online on June 8, 2001). (Online, <http://www.nato.int/docu/glossary/eng/index.htm>, accessed 14 August 2015), p. 107.

<sup>9</sup> NATO, *NATO-Russia Glossary*, p. 48; ADF, ADDP 00.9—*Multiagency Coordination: Defence's Contribution to Australian Government Responses*, ed. 1 (Canberra: Australian Defence Publishing Service, 2013).

<sup>10</sup> Milan Vego, *Operational Warfare* (Rhode Island: US Navy War College, 2000), p. 2.



## RECONSIDERING THE HISTORY OF JOINT MILITARY ACTIVITIES

---

Despite the lack of an overarching theory of joint military activities, a widely accepted common historical narrative has come to underpin the contemporary practice of jointness. It might even be said that this narrative has been used to substitute for theory in justifying the need for jointness and in explaining how it might be most effectively implemented. The narrative and interpretations of it are important to the development and application of joint military activities theory that will occur in subsequent chapters, not only because of the guiding role history has had in the absence of theory, but also because sound theory is often based on observation and rigorous interpretation of history. Frank G. Hoffman, for example, observed that '[g]ood theory should offer three components. The first is a descriptive element, which historically or empirically explains past and present phenomena'.<sup>1</sup>

Accordingly, the first section of this chapter summarises the common historical narrative of the evolution of joint military activities. Not all of this narrative is accepted at face value, however, and the second section re-evaluates the narrative through the lens of organisational culture. This is a significant departure from the methodology on which the narrative has traditionally been based, which is analysis of the collective significance of several individual historical events, particularly major engagements during wartime.

As a result of this alternative methodology, those used to the common historical narrative as presented in such prominent sources as Roger Beaumont's *Joint Military Operations: A Short History* may well be uncomfortable with the reconsideration presented here.<sup>2</sup> Yet an organisational culture perspective, which takes prominent account of the role played by the beliefs and values held within organisations and by their constituent members, is necessary to fully understand the evolution of joint military activities.<sup>3</sup> This is especially the case regarding joint military activities that have occurred outside of joint military operations, as most of these activities are driven by bureaucratic, governmental and other organisational imperatives.<sup>4</sup> As the definition of the term 'joint' itself attests, jointness is inherently about the cooperation between different organisations, specifically the different services of the same military. Hence, the consideration of bureaucratic, governmental and other organisational imperatives is vital to establishing a more comprehensive understanding of the history of joint military activities, itself essential to the development of sound theory.

Reconsidering the history of joint military activities through an organisational culture lens enables two important extrapolations to be made. These pertain to the historical scope and organisational extent of jointness, and are detailed in the final section of this chapter. They will subsequently inform the development of the theoretical model presented in the next chapter.

## The common historical narrative

Joint operations have been conducted from time-to-time throughout the history of warfare. An oft-cited early example of a joint land and naval operation was the Battle of Salamis in 480 BCE, wherein the Greeks embarked a force of *Hoplites* (light infantry) on their warships to defeat a much larger Persian fleet in the Bay of Salamis. Once the Persian fleet had been defeated, the Greeks conducted amphibious landings around the Bay so that the *Hoplites* could destroy the few Persian invaders that had made it ashore. In subsequent centuries (and millennia) the Romans, Byzantines and Vikings all undertook joint operations, as did numerous European colonial powers. Union forces conducting riverine operations during the US Civil War, particularly along the Mississippi River, are another notable historical example of the practice of joint military activities.<sup>5</sup>

Despite the numerous historical examples of joint land and naval operations, they have nonetheless been a scant occurrence when compared to operations undertaken solely by armies or navies. Indeed, for most of the history of warfare, land forces have fought other land forces on land and naval forces have fought other naval forces at sea. A notable exception to this is marines, who have traditionally adapted land force (in particular infantry) tactics for use aboard ships. In the past few centuries some marine forces have evolved into separate organisations, usually with a special focus on amphibious assault operations (the US Marine Corps presents the most obvious example), however historically this is an exception rather than a rule. In general, marines have remained under the exclusive control of navies and have been deployed at sea as a part of naval battles. For this reason, their use aboard ships would not usually be considered to constitute a joint endeavour.

Before the twentieth century, when joint operations did occur they were generally confined to the littoral environment and were usually conducted only when the amphibious lodgement of land forces or the naval bombardment of coastal defence sites was required. As a result, joint operations have historically been limited in scale and objective. Furthermore, their conduct has not traditionally required *integration* between land and naval forces. Instead, once the specific task that had brought about a joint operation had been completed, land and naval forces returned to their own mediums and continued to operate separately from one another.<sup>6</sup>

The emergence of air power during the First World War was the catalyst for the gradual evolution of joint operations into their contemporary form. Once armies and navies realised that the aeroplane was an effective weapon, neither service could afford to neglect its potential when applied above, or within, their own mediums. Yet the effects of air power within each of these mediums were fundamentally different.

For armies, the key role of air power was (and still is) the provision of close air support (CAS) to ground forces. The issues related to the provision of CAS that armies tended to emphasise were coordination, precision timing and accuracy when hitting targets. As engagements during and since the Second World War have confirmed, getting these right can result in CAS being the difference between victory and defeat at the tactical level.<sup>7</sup>

For navies, the use of aircraft resulted in major changes to the conduct of naval warfare. Prior to the use of aeroplanes at sea, naval battles were fought primarily by battleships that engaged each other with surface-to-surface gunfire. Although tests conducted in the 1920s by early air power theorists, most notably Billy Mitchell,

indicated that aeroplanes had the potential to drastically impact upon naval tactics, the results of such tests were not widely accepted within navies. Instead, it took the events of the Second World War, wherein it was proven beyond doubt that battleships were vulnerable to attack from the air, to convince the majority of naval officers that aircraft had a major role to play in naval warfare. As the war progressed this situation resulted in a fundamental change in the nature of naval battles, with aircraft carriers assuming primacy as the most important type of capital ship. By the time the battles of the Coral Sea and Midway took place in May and June 1942, aircraft were an essential component of naval warfare to the extent that aeroplanes decided the battles without the opposing fleets ever coming into sight of one another.<sup>8</sup>

Although the emergence of air power was the catalyst for the evolution of joint operations in their modern form, it was the establishment of air forces as independent military organisations of equal standing to armies and navies that necessitated a substantial increase in joint operations. This is because air forces extended the requirement for inter-service cooperation beyond the littoral environment and beyond the confines of specific types of missions. As Richard Cassidy observed, this is one of the historic paradoxes of jointness: the separation of air forces from armies and navies created a new independent service, while at the same time generating a much greater need for integration between services.<sup>9</sup>

This paradox should not come as a surprise. In a detailed study of large private sector companies, Paul R. Lawrence and Jay W. Lorsch found that higher levels of differentiation along environmental lines necessitated higher levels of integration between departments within each company, but that these could only be achieved at the cost of each other. This situation created a similar paradox in the large companies they studied to that observed by Cassidy in the case of joint military forces.<sup>10</sup> Hence, it appears that what could be dubbed the 'specialisation/co-operation paradox' may be a feature of any large organisation with specialised components, regardless of whether that organisation is military or civilian.

Another related paradox for militaries that stems from the separation of the services is that separation leads to increased duplication, as each service attempts to fulfil all of its desired operational roles within its own span of command. For example, after 1947 the US Army developed helicopter tactics to replace the departed US Army Air Force (USAAF). The US Navy has long maintained a mini-air force and a mini-army, both lashed to the Navy's sea-centric identity (the mini-army is the US Marine Corps, which since the Second World War has been large enough to be considered a service in its own right). The US Air Force (USAF) also maintains its own mini-army (the Air Force Security Forces).<sup>11</sup> What appears to be the catalyst for this duplication is a service-centric desire for ownership of the tools that each service needs to produce a specific effect.<sup>12</sup> The separation of air forces from armies and navies divided the existing toolbox and in response each service developed replacement tools to refill its own box.

Yet the rationale for independent air forces was significant enough to justify their separation from armies and navies despite the joint coordination issues that ensued. This rationale, which remains unchanged today, is a result of the finite numbers of aircraft available to achieve a multitude of missions during a campaign. Because of this limitation, the centralisation of the command and control of aircraft allows them to be deployed *en masse* to achieve missions in descending order of strategic priority. This is important because several of the missions that have traditionally been

accorded the highest priority by air forces—for example, establishing air control during the initial phases of a campaign—often do not align with army or navy priorities for the deployment of aircraft in their direct support. Allowing air forces to undertake independent operations in their own medium permits them to shape the conditions under which they subsequently provide direct support to armies and navies, a factor that tends to make the completion of support tasks easier.<sup>13</sup>

One of the key results of the need to manage competing priorities for the use of air power has been the concurrent need for ongoing joint coordination on land and at sea as well as in the littoral environment. This need has not traditionally been the priority of armies, navies or air forces, which have instead tended to pursue independent operations in their own mediums, orchestrating joint operations only when unavoidable.<sup>14</sup> The US military's experience from the beginning of the Second World War until the late 1980s provides a good example of this situation.

During the Second World War, the US Army concentrated on fighting land campaigns, primarily in North Africa and Europe. The US Navy, meanwhile, concentrated on keeping the Atlantic sea lines of communication between North America and Europe open and on winning sea battles against Japanese forces in the Pacific. The USAAF, which operated independently despite its official status as a branch of the US Army, concentrated on conducting strategic bombing campaigns against Japan and (to an even greater extent) Germany.<sup>15</sup> When air power was applied at sea, particularly in the Pacific Ocean, it was usually by aircraft controlled by the Navy and launched from carriers. This eliminated much of the need for joint cooperation. On land, however, the USAAF played a much more prominent role in providing CAS to the Army, despite its primary focus being elsewhere.<sup>16</sup> Major joint operations usually occurred only when the strategic situation left no other options. The D-Day landings and the Pacific island-hopping campaign are good examples of such operations.<sup>17</sup>

In the aftermath of the Second World War, inter-service rivalries and disputes over the allocation of decreasing funds became increasingly prominent. The result was that many of the joint coordination lessons learned during the Second World War were lost, as later operations in Korea and Vietnam demonstrated.<sup>18</sup> Despite the general trend, exceptions are evident in both of these wars. In Korea, for example, the amphibious landing at Inchon was joint, as was the conduct of riverine operations during the Vietnam War and the provision of CAS during both wars. These examples are, however, the exception and not the rule.<sup>19</sup> By the 1980s the US military was characterised by four separate, competing services. Even small-scale operations presented major joint coordination problems, as the aborted mission to rescue hostages from Iran in 1980 and the dismal (if ultimately successful) invasion of Grenada in 1983 revealed.<sup>20</sup>

Due to the extent of the organisational problems facing each of the four services at the end of the Vietnam War, it was only after the operational mishaps of the early 1980s that momentum grew for joint reform. This was because almost all of the US military's reform efforts during the late 1970s and early 1980s were single-service driven, motivated by strong desires within each service to 'put its own house in order'.<sup>21</sup> Due to this single service focus, it was not until the mid-1980s that joint reforms were finally prioritised. The catalyst for major upheaval at the joint level was the passage of the Goldwater-Nichols Department of Defense Reorganization Act in 1986. So entrenched were inter-service rivalries during this period that legislation of the Act was only possible following four years of bickering between Service Chiefs,

the military Joint Chiefs of Staff, the civilian Department of Defense and the Congress and Senate Armed Services Committees.<sup>22</sup> Shortly after the passage of Goldwater-Nichols the 1991 Gulf War provided a prominent and highly successful (if not entirely flawless) example of a joint operation, especially where coordination between the US Army and USAF was concerned.<sup>23</sup>

In addition to reinforcing the joint reform movement within the US military and substantially boosting its momentum, the Gulf War either generated, or in some cases renewed, organisational shifts towards jointness within other Western militaries. In the British armed forces, for example, the Gulf War and subsequent 'revolution in military affairs' debate led to the establishment of a Permanent Joint Headquarters in August 1996, the combining of military education institutions into a newly-established Joint Services Command and Staff College in January 1997 and the raising of a tri-service Joint Rapid Reaction Force, which became operational in April 1999.<sup>24</sup> Other US allies, including Australia and Canada, undertook several joint reforms of their own during this period.<sup>25</sup>

Almost without exception the campaigns and operations conducted by Western militaries since the early 1990s have involved joint operational planning and execution. The increasing extent of joint cooperation during campaigns and operations has been accompanied by ongoing organisational reforms toward the development of joint structures and hierarchies, especially at senior levels, leading to what Christopher Dandeker termed the 'purple trend' of the 1990s.<sup>26</sup> This trend continued into the early 2000s, with the wars in both Afghanistan and Iraq providing numerous further examples of joint cooperation.<sup>27</sup>

## Reconsidering the narrative

Before discussing joint military activities theoretically, the common historical narrative of the evolution of jointness is worth reconsidering, to ensure that the theory of joint military activities subsequently proposed is based on the soundest possible historical foundation. Where the common historical narrative has been based mostly on collective analysis of a series of significant historical events, particularly major engagements during wartime, the reconsideration offered here is undertaken from an organisational culture perspective. This perspective offers different insights and leads to the identification of three major aspects of the common historical narrative that ought to be reconsidered.

The first aspect is the idea that joint military operations date to antiquity. The problem with this aspect is that it conflicts with the definition of joint as 'involving two or more services'. Military 'services', as we understand them today, have a lineage dating only to the sixteenth century. Before then the nature and employment of, and attitudes towards, maritime forces arguably precluded the existence of jointness in the modern sense. This is partly because navies as we know them today rarely existed in ancient and classical societies. Although maritime warfare has existed since antiquity, naval forces themselves were perceived differently by pre-modern societies. Perceptions of, and attitudes toward, naval forces should not be confused with the roles these forces play. The latter have been much more consistent over time and are encapsulated in Ken Booth's model explaining the triumvirate of naval roles, which he determines to be diplomacy, constabulary and military.<sup>28</sup>

Often, pre-modern naval forces were composed of either warships manned by mercenaries or of drafted merchant ships, with fleets often formed for a particular war

or campaign and disbanded afterwards.<sup>29</sup> When standing navies did exist they were often considered an auxiliary or adjunct of armies. It is likely that the way most ancient and classical societies thought about the difference between their armies and navies was akin to the way we today think about the difference between armour, infantry, artillery, and so on, within modern armies. Organisationally at least, this was often the case. In the Roman Empire, for example, the navy was generally considered as an appendage to the Roman Army, with Potter commenting that 'naval activity was always regarded as somehow other than Roman'.<sup>30</sup>

Occasionally, particularly in the case of seafaring societies, it was land forces that were considered an adjunct to naval forces. For instance, at the height of its power in the tenth to fourteenth centuries, Venice maintained a strong naval force to support and protect its Mediterranean trade routes and merchant shipping. When it engaged in land warfare during this period, it almost exclusively did so near the coast, to gain and maintain control of trade routes and the port facilities that provided necessary support to its maritime forces, or to resolve trade disputes with other coastal empires and states.<sup>31</sup>

The technology that enabled fighting to occur at sea from antiquity until the rise of the sailing ship in the sixteenth century is likely to have contributed to this perception. For most of this period the only ranged weapons available at sea were arrows or projectiles launched from small catapults and although flaming projectiles were especially dangerous at sea, for a battle to yield a decisive result the opposing ships generally had to close with one another. Once grappling hooks or the like had been used to draw opposing ships together they effectively became small, temporarily connected islands upon which marines (naval infantry) were able to employ infantry minor tactics in what often became *mêlées*.<sup>32</sup>

Additionally, jointness in the contemporary sense was not a consideration in ancient and classical military theory or practice because during these periods human societies did not collectively understand the divide between land and naval forces in the way that our own society does today. Although environmental differences have always been evident and the subject of consideration, the outcome of this consideration reflects the limits of human knowledge at the time any given consideration was made. Our own contemporary understanding of the divide between land and naval warfare is the product of five centuries of development of independent institutions for, and later the publication of greatly influential theoretical writings about, land and naval warfare.<sup>33</sup> Put another way, modern societies had to first invent the divide between their land and naval armed forces before the requirement to bridge that divide could be identified. Then, in turn, jointness was required to actually bridge it. The identification of jointness in any time period before the evolution of modern armies and navies is a reification of a modern idea.

Another factor inhibiting the historical practice of jointness as it is conceived today was the inability of forces to achieve anything beyond a rudimentary level of coordination up until very recently. This was largely due to the development of technology, or more precisely the lack of the development of technology required to achieve the degree of coordination necessary for modern joint operations. For example, although modern militaries have the luxury of taking for granted that all of their force elements can synchronise actions to within hours, minutes or sometimes even seconds, time was understood, appreciated and employed differently until only a few centuries ago. Before that, coordinating military activities beyond planning in terms of days was at best very difficult.<sup>34</sup> Different perceptions of the meaning of

distance and very limited communications and logistics technologies were also major impediments to joint coordination before the nineteenth century, and poor rates of literacy and numeracy amongst military forces also greatly limited the extent of coordination that could be realistically expected.<sup>35</sup>

The second aspect to be reconsidered is the idea that the contemporary approach to jointness, including the challenges and advantages it entails, is ubiquitous. This is not the case and the historical roots of jointness are instead the product of military practice and thought in a very small group of countries.

The change that eventually led to the contemporary Western understanding of the difference between land and naval warfare was the onset of the 'age of sail' in the sixteenth century. Technological changes during this period enabled ever-larger capital ships to sail across oceans for prolonged periods without needing to remain relatively close to a coastline. The result was a change in perceptions of what access to the sea and the role of sea power meant for a society. Ian Morris captured this change in perceptions when he observed that during the sixteenth century 'instead of being a barrier [as it had previously been], the Atlantic was beginning to look like a highway'.<sup>36</sup> Although this change in perception applied to all oceans, not just the Atlantic, the number of countries able to take full advantage of the underlying technological changes remained very small. These countries included initially Spain, the Netherlands and Britain, and later France and the US, with Russia, Germany and Japan attempting (ultimately unsuccessfully) to catch up to them at various times.<sup>37</sup> As a result the conceptual divide between thinking about land warfare and naval warfare has grown disproportionately in these countries. Of note, all are Western countries except for Japan.

Contemporary thinking about air power initially evolved in an even smaller group of countries. In this case Britain, the US, France and a few of Britain's dominions (Australia and Canada) approached the development and employment of air power during the early twentieth century in a conceptually very different way to Russia, Germany and Japan.<sup>38</sup> This difference shaped the way each of these groups of countries has since needed to integrate jointly, although institutions and therefore joint military requirements in the latter group have come to mirror those of the former since the end of the Second World War.

It can therefore be determined that the need for jointness has not only been limited to the last five hundred years or so, but has also been limited to a very small number of countries until very recently. Even within this small group of culturally similar countries, cultural differences and their impact on jointness are noticeable. Systems of government present a good example. Even though these countries are (today) all democracies, their practice of democracy is different. In the US, the balance of power system between the executive and Congress has led to a very different system for acquisitions, administrative and logistics funding that is much more diffuse than the equivalent arrangements in allied countries such as Britain, Canada and Australia, where more power is concentrated in the parliament than the executive.<sup>39</sup>

In the last seventy years or so since the end of the Second World War this situation has gradually changed. Other countries around the world have attempted more earnestly to replicate the Western style of warfare, including by creating organisationally distinct maritime, land and air forces, albeit with mixed success. This proliferation of Western-style armed forces within non-Western countries arguably went hand-in-hand with the process of decolonisation that took place from the late

1940s until the mid-1970s, and with the concurrent expansion of the Westphalian system of state sovereignty.

This transformation of the international system was not a linear process, however. Nor was transformation uniform. Furthermore, states in other parts of the world certainly did not follow the same trajectory as Europe even though it was initially supposed that they would. Instead, a mixture of local and imported cultures and methodologies led to local situations that were at once unique and yet similar to those elsewhere.<sup>40</sup> It must also be noted that in the case of land forces, a few key non-Western countries had already adopted Western military systems during the eighteenth and nineteenth centuries. These countries included Egypt, the Ottoman Empire (and subsequently Turkey), Ming China and Japan, the latter of which also developed Western-style naval forces from the mid-nineteenth century. Within each of these countries the creation of Western style armies had significant longer-term impacts on society and national identity.<sup>41</sup>

Outside of the core group of mostly Western countries wherein the environmentally determined military system originated, approaches to jointness have been shaped by the continued existence of national or regional cultures. These cultures and the values and beliefs they entail have shaped perceptions of land, maritime and air power and the ways in which it is desirable for them to interact. As a result of this cultural dimension, non-Western countries have needed to find culturally different solutions to the same set of manifest joint coordination issues, or have (more frequently) attempted to apply templates of Western solutions irrespective of their own local conditions, with mixed success. For example, the effects of one such situation are demonstrated throughout Kenneth Pollack's *Arabs at War*, where various aspects of Arab culture are identified as explanations underlying numerous instances of sub-optimal coordination (or outright failure of coordination) between Arab armies and air forces.<sup>42</sup>

In short, the approach to jointness that needs to be pursued in Western countries is different to the approach required in other parts of the world, even if the difference is a subtle one. Indeed, even between the core Western countries themselves the need for, and nature of, local arrangements has often been neglected within the common historical narrative.

The final aspect of the common historical narrative to be reconsidered is the role of military operations as catalysts for increasing levels of jointness. In the common narrative, until the last few decades of the twentieth century jointness came about only because of relatively short-term imperatives, and jointness is often observed as being little more than a temporary, if vital, arrangement required to achieve particular operational objectives. Armies and navies (and in the twentieth century air forces) only worked together operationally and only for as long as necessary to complete a mutually-beneficial mission. This tendency is not disputed here. It is asserted, however, that accompanying analyses of the underlying reasons for this ad hoc approach to inter-service cooperation have tended to miss a vital causal factor: the role of the growth of institutionalism and bureaucracy in Western society.

Although navies have landed soldiers and marines ashore for millennia, during the sixteenth to the nineteenth centuries it was also relatively common for sailors to be landed to conduct raids or for other short-duration operations. This was especially the case in distant colonies or in territories that were not (yet) subjected to European colonisation, as during this period communication with home countries was slow-to-



non-existent and dynamic situations often required urgent action. Often local naval forces were the only forces able to undertake the required action, even if that action needed to take place ashore. In the twentieth century this practice gradually ceased and today it is expected that either marines or soldiers (or both) will undertake even small-scale landings, with navies inserting them but not actually going ashore in significant numbers. It is likely that this change in practice is due to an increasingly rigorous determination, followed by progressive institutionalisation, of norms regarding what is perceived as the 'proper' role of armies, navies and marine corps. This determination fits within a broader trend of progressive institutionalisation of Western society.<sup>43</sup>

By the late twentieth century, institutional perceptions of the proper role of each service had reached their zenith. Carl H. Builder elaborated on what these perceptions were within the US armed forces, arguing that each service sought to accomplish national strategic objectives alone using the core means that defined it as a separate service. To this end the US Navy sought large maritime battles, the US Army sought huge tank battles against a near-peer opponent and the USAF sought aerial dog fights, to be fought by fighter aces. Builder, writing in the late 1980s, observed that each of the services wanted to win wars in a way that would require the US government to invest in a military future with that service in the spotlight.<sup>44</sup>

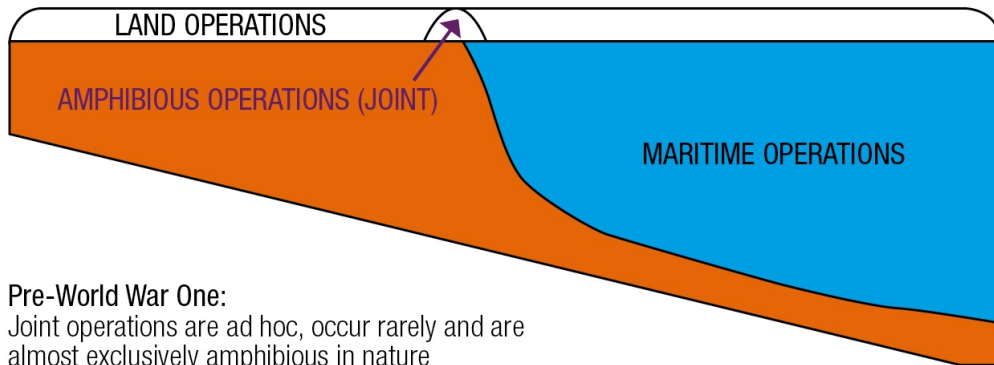
The common historical narrative is correct that the invention of air forces as a separate service was the catalyst for the rapid expansion in the need for jointness, but here also it under-emphasises institutional and bureaucratic imperatives. In this instance the circumstances surrounding the emergence not of jointness but of its antonym, inter-service rivalry, have been under-emphasised. It is unfortunate not just for air forces but also for jointness that most Western air forces were established at a time of decreasing defence budgets: post-First World War for several Commonwealth countries and post-Second World War for the US. In these countries shrinking defence budgets have traditionally brought about increases in inter-service rivalry and the budget cuts following both world wars were particularly severe.

This atmosphere resulted in inter-service rivalry being strongly enshrined in the institutional culture of all three services from the moment that independent air forces were established. In turn, this made it a much more difficult task to subsequently establish a culture of inter-service cooperation. Indeed, establishing a culture of inter-service cooperation was so difficult in the US that even after operations such as those in Iran in 1980 and Grenada in 1983 provided ample evidence of the need for jointness as a pre-requisite for operational success, legislation (in the form of the Goldwater-Nichols Reorganization Act) was still required to compel the services to start working together jointly. The institutional and bureaucratic factors that led to this resistance to jointness tend to have been mentioned consistently in passing by those discussing jointness, even though they have arguably been at least as important to preventing the conduct of joint military activities as operational imperatives have been to enabling it. A more balanced analysis of both operational *and institutional* factors, and their impact on the practice (or otherwise) of jointness, is necessary to correct this imbalance.

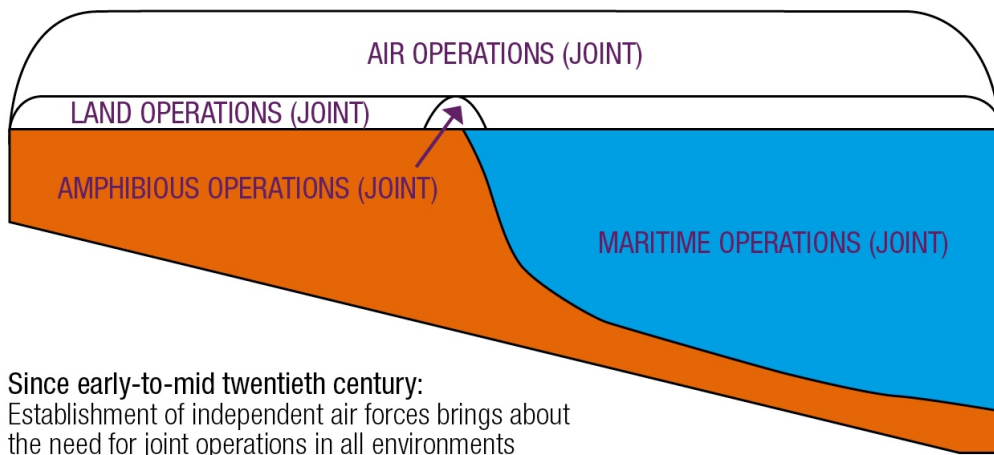
## Two extrapolations

Reconsidering the historical narrative of joint military activities through an organisational culture lens enables two important extrapolations. The first is that an effective theory of joint military activities needs to place greater emphasis on the

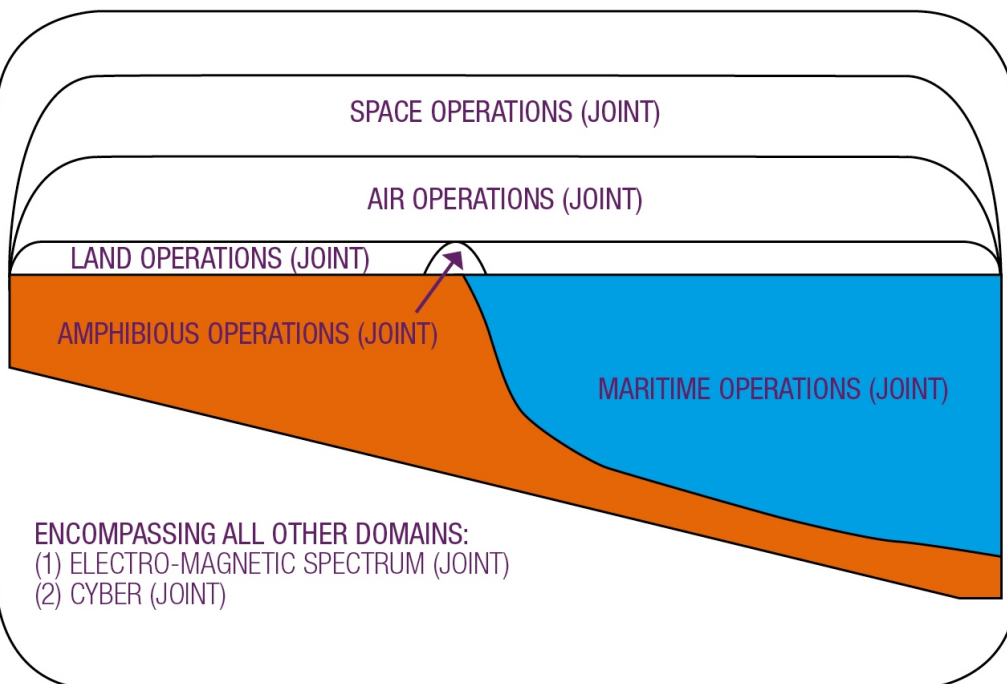
**Figure 2.1: The rapid growth in the need for joint operations in the last 100 years or so**



**Pre-World War One:**  
Joint operations are ad hoc, occur rarely and are almost exclusively amphibious in nature



**Since early-to-mid twentieth century:**  
Establishment of independent air forces brings about the need for joint operations in all environments



**Since mid-to-late twentieth century:**  
Military use of other domains (space, electromagnetic spectrum and cyber) further enhances the requirement for, and intricacy of, joint coordination

recent history (about the past 100 years or so) of a fairly small group of mostly Western countries. This is because joint military activities in the contemporary sense have predominantly been practiced by this small group of countries and within this short timeframe. This relatively recent growth of the need for extensive joint operations is graphically depicted in Figure 2.1. Although historical examples from other periods and countries may add additional value to the theoretical development of joint military activities, any such examples need to be carefully considered to ensure that they are not taken out of their historical and/or cultural context.

The second extrapolation is that jointness encompasses more than just operational conduct, even though cooperation between services during the conduct of operations remains central to the successful practice of jointness. This is why operational art alone is not sufficiently encompassing to be considered as an adequate theory of joint military activities (for more on this, see Chapter One). Any theory of jointness needs to take into account institutional, bureaucratic and cultural as well as operational factors if it is to be genuinely representative of what enables successful joint operational conduct. In the next chapter, a theory of joint military activities is proposed that takes all of these factors into account.

## Notes

<sup>1</sup> Frank G. Hoffman, *Conflict in the 21st Century: The Rise of Hybrid Wars* (Arlington, VA: Potomac Institute for Policy Studies, December 2007), p. 55.

<sup>2</sup> Roger A. Beaumont, *Joint Military Operations: A Short History* (Westport: Greenwood Press, 1993).

<sup>3</sup> On organisational culture in the military context see: Carl H. Builder, *The Masks of War: American Military Styles in Strategy and Analysis* (Baltimore, MD: John Hopkins University Press, 1989); Elizabeth Kerr, 'Culture and French Military Doctrine Before World War II' in: Peter J. Katzenstein, *The Culture of National Security: Norms and Identity in World Politics* (New York: Columbia University Press, 1996), pp. 202-204. On organisational culture in general see: Andrew M. Pettigrew, 'On Studying Organizational Cultures', *Administrative Science Quarterly*, Vol. 24, No. 4 (December 1979), pp. 570-581; Edgar H. Schein, 'Coming to a New Awareness of Organizational Culture', *Sloan Management Review*, Vol. 25, No. 2 (Winter 1984), pp. 3-16; Pasquale Gagliardi, 'The Creation and Change of Organizational Cultures: A Conceptual Framework', *Organizational Studies*, Vol. 7, No. 2 (April 1986), pp. 117-134.

<sup>4</sup> The passage of the Goldwater-Nichols Defense Reorganization Act is an excellent example of the relationship between these imperatives. See: James R. Locher, *Victory on the Potomac: The Goldwater-Nichols Act Unifies the Pentagon* (College Station: Texas A&M University Press, 2002).

<sup>5</sup> Beaumont, *Joint Military Operations*, pp. 1-39.

<sup>6</sup> Alan Stephens, 'The Clash of Cultures: Command and Control in Joint Warfare', *Australian Defence Force Journal*, No. 174 (November/December 2007), p. 4.

<sup>7</sup> Stephens, 'The Clash of Cultures', pp. 5-7.

<sup>8</sup> Stanley Johnston, 'Coral Sea: "Scratch One Flat-Top"' in: William H. Honan (Ed.), *Great Naval Battles of the Twentieth Century* (London: Robson Books, 1993), pp. 239-240; Tom Moore, 'Midway: I Dive-Bombed a Jap Carrier' in: Honan (Ed.), *Great Naval Battles of the Twentieth Century*, p. 246.

<sup>9</sup> Richard Cassidy, 'In the Footsteps of Others: Team NZDF's Quest for Jointness' in: Joel Hayward (Ed.), *A Joint Future? The Move to Jointness and its Implications for the New Zealand Defence Force* (Palmerston North: Massey University, 2000), p. 74.

<sup>10</sup> Paul R. Lawrence & Jay W. Lorsch, 'Differentiation and Integration in Complex Organizations', *Administrative Science Quarterly*, Vol. 12, No. 2 (June 1967), pp. 1-47.

<sup>11</sup> International Institute for Strategic Studies, *The Military Balance*, Vol. 117 (2017), pp. 45-57.

<sup>12</sup> The term 'tools' is used here as an analogy for familiar paradigms, situations and social structures. This analogy owes its inspiration to the discussion in: Karl E. Weick, 'Drop Your Tools: An Allegory for Organizational Studies', *Administrative Science Quarterly*, Vol. 41, No. 2 (June 1996), pp. 301-313.

<sup>13</sup> Stephens, 'The Clash of Cultures', pp. 4-10.

<sup>14</sup> An excellent discussion of the different cultures of each service and how these generate competing priorities can be found in: Builder, *The Masks of War*.

<sup>15</sup> David A. Anderton, *The History of the US Air Force* (London: Hamlyn-Aerospace, 1981), pp. 49-133.

<sup>16</sup> Benjamin Cooling (Ed.), *Case Studies in the Development of Close Air Support* (Washington DC: Office of Air Force History, 1990), contains four essays which, when read together, provide a comprehensive history of the development of CAS within the US military during the Second World War (these essays constitute chapters 4-7).

- <sup>17</sup> Williamson Murray, 'The Evolution of Joint Warfare', *Joint Force Quarterly*, No. 31 (Summer 2002), p. 35.
- <sup>18</sup> David C. Jones, 'Past Organizational Problems', *Joint Force Quarterly*, No. 13 (Autumn 1996), p. 25.
- <sup>19</sup> Beaumont, *Joint Military Operations*, pp. 137-155.
- <sup>20</sup> Ronald H. Cole, 'Grenada, Panama, and Haiti: Joint Operational Reform', *Joint Force Quarterly*, No. 20 (Autumn/Winter 1998-99), pp. 57-59.
- <sup>21</sup> Murray, 'The Evolution of Joint Warfare', p. 36.
- <sup>22</sup> The negotiation process leading up to the legislation of the Goldwater-Nichols Act is described in great detail in: Locher, *Victory on the Potomac*.
- <sup>23</sup> Max Boot, *War Made New: Technology, Warfare, and the Course of History, 1500 to Today* (New York: Gotham Books, 2006), chap. 10, esp. pp. 333-349; Christopher G. Marquis, Denton Dye & Ross S. Kinkead, 'The Advent of Jointness During the Gulf War: A 25-year Retrospective', *Joint Force Quarterly*, No. 85 (2nd Quarter 2017), p. 76-83.
- <sup>24</sup> Markus Mader, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era, 1989–2002*, Studies in Contemporary History and Security Policy No. 13 (Bern: Peter Lang, 2004), pp. 230-234 & 362.
- <sup>25</sup> For an overview of the evolution of jointness in Australia and Canada see: Aaron P. Jackson, *Doctrine, Strategy and Military Culture: Military-Strategic Doctrine Development in Australia, Canada and New Zealand, 1987-2007* (Trenton: Canadian Forces Aerospace Warfare Centre, 2013), pp. 136-147. (Online: [http://publications.gc.ca/collections/collection\\_2013/dn-nd/D2-320-2013-eng.pdf](http://publications.gc.ca/collections/collection_2013/dn-nd/D2-320-2013-eng.pdf), accessed 27 October 2017).
- <sup>26</sup> The colour purple is used by Western militaries to symbolise jointness. This is because it represents a blend of army red, navy dark blue and air force light blue. Christopher Dandeker, 'On "The Need to be Different": Recent Trends in Military Culture' in: Hew Strachan (Ed.), *The British Army, Manpower and Society into the Twenty-First Century* (London: Frank Cass, 2000), p. 177.
- <sup>27</sup> For examples see discussion in: Steve Bowman & Catherine Dale, *The War in Afghanistan: Strategy, Military Operations, and Issues for Congress*, Congressional Research Service Report for Congress No. R40156, 3 December 2009; John R. Ballard, *From Storm to Freedom: America's Long War with Iraq* (Annapolis, MD: US Naval Institute Press, 2010), pp. 123-239.
- <sup>28</sup> Ken Booth, *Navies and Foreign Policy* (New York: Holmes & Meier, 1979), pp. 16-24.
- <sup>29</sup> John B. Hattendorf, 'Sea Warfare' in: Charles Townshend (Ed.), *The Oxford Illustrated History of Modern War* (Oxford: Oxford University Press, 1997), pp. 215-216.
- <sup>30</sup> David Potter, 'The Roman Army and Navy', in Harriet I. Flower (Ed.), *The Cambridge Companion to the Roman Republic* (Cambridge: Cambridge University Press, 2004), p. 77.
- <sup>31</sup> Charles Tilly, *Coercion, Capital, and European States, AD 990-1992* (Cambridge, MA: Blackwell, 1992), pp. 143-150.
- <sup>32</sup> Beaumont, *Joint Military Operations*, pp. 2-9, discusses tactical developments in Western navies. Peter Lorge, 'Water Forces and Naval Operations' in David A. Graff and Robin Higham (Eds), *A Military History of China* (Boulder: Westview Press, 2002), pp. 81-96, offers a perspective on the role of pre-modern naval warfare in a key non-Western society.
- <sup>33</sup> Naval warfare was considered by the likes of Vegetius, Christine de Pisan and Jean de Buiel, however these writers were in a very small minority and naval warfare was never a mainstream

concern until sometime after the French Revolution. Beatrice Heuser, *The Evolution of Strategy: Thinking War from Antiquity to the Present* (Cambridge: Cambridge University Press, 2010), pp. 207-215. The most famous of the modern writers on warfare in each environment include the likes of Carl von Clausewitz, Henri Jomini, J.F.C. Fuller and B.H. Liddell-Hart for land power (to name but a few) and Alfred Thayer Mahan, Sir Julian Corbett and Ken Booth for naval power. To this list may be added the more recent writings of Giulio Duhet and Billy Mitchell for air power.

<sup>34</sup> Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (London: Hurst & Co., 2009), pp. 38-41.

<sup>35</sup> On changes to these aspects over time, see: Bousquet, *The Scientific Way of Warfare*; Martin van Creveld, *Supplying War: Logistics from Wallenstein to Patton* (Cambridge: Cambridge University Press, 1977); Kalevi J. Holsti, *Peace and War: Armed Conflicts and International Order, 1648-1989* (Cambridge: Cambridge University Press, 1991); Martin van Creveld, *Technology and War: From 2000 B.C. to the Present* (New York: The Free Press, 1989), esp. pp. 67-78. This latter source, while tending to be technologically deterministic, provides an interesting discourse on irrational applications of technology in its fifth chapter. Finally, on the role and importance of collective perception in the accumulation of knowledge, see: Karl E. Weick, 'The Role of Imagination in the Organizing of Knowledge', *European Journal of Information Systems*, Vol. 15, No. 5 (September/October 2006), pp. 446-452.

<sup>36</sup> Ian Morris, *Why the West Rules—For Now: The Patterns of History and what they Reveal about the Future* (London: Profile Books, 2010), pp. 459-468, quote p. 465.

<sup>37</sup> Heuser, *The Evolution of Strategy*, pp. 204-206.

<sup>38</sup> The nature of this difference is examined in: William March, 'Different Shades of Blue: Interwar Air Power Doctrine Development. Part 1: Air Power, Doctrine and the Anglo-American Approach', *Canadian Air Force Journal*, Vol. 2, No. 1 (Winter 2009), pp. 16-27; William March, 'Different Shades of Blue: Interwar Air Power Doctrine Development. Part 2: Germany and Japan', *Canadian Air Force Journal*, Vol. 2, No. 2 (Spring 2009), pp. 17-29.

<sup>39</sup> For this insight I am indebted to Dr Christopher R. Papparone, personal correspondence with author, 12 December 2014.

<sup>40</sup> Tilly, *Coercion, Capital, and European States*, chap. 7; Holsti, *Peace and War*, pp. 303-305.

<sup>41</sup> David B. Ralston, *Importing the European Army: The Introduction of European Military Techniques and Institutions into the Extra-European World, 1600-1914* (Chicago: University of Chicago Press, 1990).

<sup>42</sup> Kenneth M. Pollack, *Arabs at War: Military Effectiveness, 1948-1991* (USA: University of Nebraska Press, 2004), esp. pp. 123-124, 143, 191-192, 214, 229-230, 401-402, 409-410, 422, 444, 499, 522, 533, & 549-550. Wanda Ayuso and Lonnie Henley, who discuss recent organisational and cultural barriers to jointness in the Chinese People's Liberation Army (PLA), provide another example. Wanda Ayuso & Lonnie Henley, 'Aspiring to Jointness: PLA Training, Exercises, and Doctrine, 2008-2012' in: Roy Kamphausen, David Lai & Travis Tanner (Eds.), *Assessing the People's Liberation Army in the Hu Jintao Era* (Carlisle, PA: US Army War College Press, 2014), pp. 171-205.

<sup>43</sup> George M. Thomas & John W. Meyer, 'The Expansion of the State', *Annual Review of Sociology*, No. 10 (1984), pp. 461-482.

<sup>44</sup> Builder, *The Masks of War*, pp. 3-92.

## A THEORY OF JOINT MILITARY ACTIVITIES

---

Theoretical perspectives on joint military activities are today where maritime warfare theory was in the mid-nineteenth century: still emerging and yet to find a champion. That concepts such as the revolution in military affairs, network centric operations and effects based operations may be discussed under the label of ‘joint theories’ when they are actually more conceptual in nature is a symptom of the present embryonic state of joint military activities theory.<sup>1</sup> The difference between a concept and a theory is important here. A concept is a general idea, whereas a theory is formed through the testing of ideas, hypotheses or propositions, to derive methods, principles or rules that may explain or provide guidance.

The closest this author has seen to a theory of joint military activities is an application of James D. Thompson’s ‘three types of interdependencies’ to explain the nature of operational cooperation between the services, but this application was cursory and exclusively operationally-focused.<sup>2</sup> In another study Donald Lowe and Tim McKay elaborated joint tenets and dimensions, and developed guiding principles for the design of joint systems. But by their own admission what they offered was a ‘conceptual model’ rather than a complete theory, with their guiding principles ‘considered to be preliminary, [as] they need to be tested and developed further’.<sup>3</sup> While both of these papers are steps in the right direction, to move beyond the current embryonic theoretical period it is necessary to establish a theory that can be applied to allow joint military activities to be more substantially analysed. To be useful to practitioners this theory needs to be pragmatically grounded in the praxis of joint military activities, which is why the previous chapter was devoted to examining and reconsidering the history of joint military activities.

The theoretical model proposed in this chapter is labelled ‘the four aspects of joint’. It is based on observations of the evolution of jointness in several Western armed forces over the last 100 years or so, as summarised in the last chapter, although focusing particularly on the period since the late 1980s. This examination reveals that jointness can be disassembled into four constituent aspects: operational; organisational (or structural); educational; and doctrinal.<sup>4</sup> The first section of this chapter explains each aspect, while the second examines the aspects together, proposing how the model may be applied as a methodology for evaluating the jointness or otherwise of armed forces. Finally, the third section examines the maximum extent to which a force could theoretically be considered joint before it crosses the threshold of service integration.

### The four aspects of joint

The four aspects of jointness elaborated here are the operational, organisational, educational and doctrinal aspects. As discussed in the previous chapter, the operational aspect has the longest lineage. This is the aspect of jointness concerned directly with the conduct of campaigns and operations involving more than one service. When armies, navies and air forces have traditionally worked together it has generally been in the pursuit of campaign or operational objectives. Such cooperation

has traditionally been limited to ad hoc and short term arrangements driven by operational imperatives, and joint command and control arrangements have usually been established from scratch with the onset of each new campaign or operation, if they have been defined at all.

In the 1990s and 2000s, a new trend emerged in this area: the formal establishment of permanent joint operational command and control structures. In the US military this establishment occurred as a component of broader reforms to the role of regional commands (which are currently officially titled 'Unified Combatant Commands').<sup>5</sup> Smaller allied armed forces created similar joint operational headquarters but with a more global jurisdiction, such as Permanent Joint Headquarters in Britain, Headquarters Joint Operations Command in Australia, and the Joint Operations Group (and later Joint Operations Command) in Canada.<sup>6</sup>

The second aspect of jointness is the organisational aspect, which involves the establishment of joint organisational structures that are not directly operational. This aspect has a much more recent lineage than the operational aspect and most joint reforms that could be assessed as falling under the remit of this aspect have occurred since the 1980s. Generally these reforms have been achieved by integrating, to various extents, formerly separate elements of each of the services. Often organisational integration has occurred in areas where there had previously been duplication within different services – logistics, training and personnel agencies are typical areas where joint organisational structures have been established.<sup>7</sup> The integration of elements of the higher command arrangements of each service has also occurred in some militaries as an additional way to develop a more cohesive joint command structure. An early example of this is Australia's implementation of the 'Tange reorganisation' in 1976, which established the position of Chief of the Defence Force Staff atop the Service Chiefs, creating a joint Australian Defence Force structure where none had previously existed.<sup>8</sup>

At this point it is worth reiterating the difference between the operational and organisational aspects of jointness, to ensure clarity. The key difference is that the latter aspect is *not directly operational*, even though joint organisational reforms frequently have indirect implications for the conduct of campaigns and operations. For the purposes of subsequent analysis, the line between the operational and organisational aspects of jointness is drawn between forces conducting campaigns and operations, and declared 'operational headquarters' such as the US' Unified Combatant Commands on one hand and, on the other, higher (strategic or national) commands and supporting (logistics, health, personnel, etc.) commands that branch across multiple services and/or operational headquarters. Unsurprisingly, in reality the operational/organisational divide is somewhat blurred, particularly in the case of permanent operational headquarters as these have both significant operational and organisational functions. For the purposes of this paper, however, their inclusion in the operational aspect of jointness is adequate to enable analysis in the next chapter.

In addition to the structure of higher headquarters and units providing supporting functions, the organisational aspect of jointness also encompasses what may be referred to as designing and building future forces.<sup>9</sup> Joint future force design involves joint-focused strategic policy, capability development and acquisitions programs. As Melissa A. Schilling and Christopher R. Papparone highlight, this component of the organisational aspect of jointness need not curtail the unique capabilities possessed by different services. Instead, jointness in this area can be achieved by modularity, which involves expanding the compatibility of force elements across services to make them more interoperable. For example, this may be achieved by each service



acquiring communications equipment that enables their radio networks to ‘talk’ to each other.<sup>10</sup> Another example is the preparation of future-focused joint operating concepts, such as the US military’s *Joint Force 2020* and the Australian Defence Force’s (ADF’s) *Future Joint Operating Concept 2030*, which provide guidance for joint force design and inform capability development, in preparation for possible future scenarios.<sup>11</sup> Even though such concepts are operationally-focused, they are part of the organisational aspect of jointness because their future focus results in them impacting on organisational future planning rather than on current operations.

It is noteworthy that the organisational aspect of jointness has attracted much criticism, sometimes justified and other times not. Generally criticism has been on the grounds that the creation of joint organisations and command structures has not occurred in the interests of creating operational or organisational efficiencies, but has instead been undertaken as a cost-cutting measure.<sup>12</sup> Criticisms of this nature were especially prominent during the early 1990s, when most Western militaries suffered from significant post-Cold War budget cuts.

The third aspect of jointness is educational. To cultivate fledgling joint cultures, the establishment of joint military education institutions has typically accompanied the move to jointness. This is especially the case regarding mid-level and senior officer education. Sometimes joint education institutions have been established by amalgamating previously separate single service institutions. The Joint Service Command and Staff College opened by the British armed forces in 1997 is a good example of such an amalgamation.<sup>13</sup> In the US military single service and joint educational institutions existed alongside one another prior to the 1990s. During the early 1990s joint institutions were given an expanded role and measures were taken to encourage members of each service to enrol in their courses. Additional reforms were also implemented to encourage single service educational institutions to change their curriculums to include a greater focus on the joint components of operations.<sup>14</sup> All of these reforms are elements of the educational aspect of jointness.

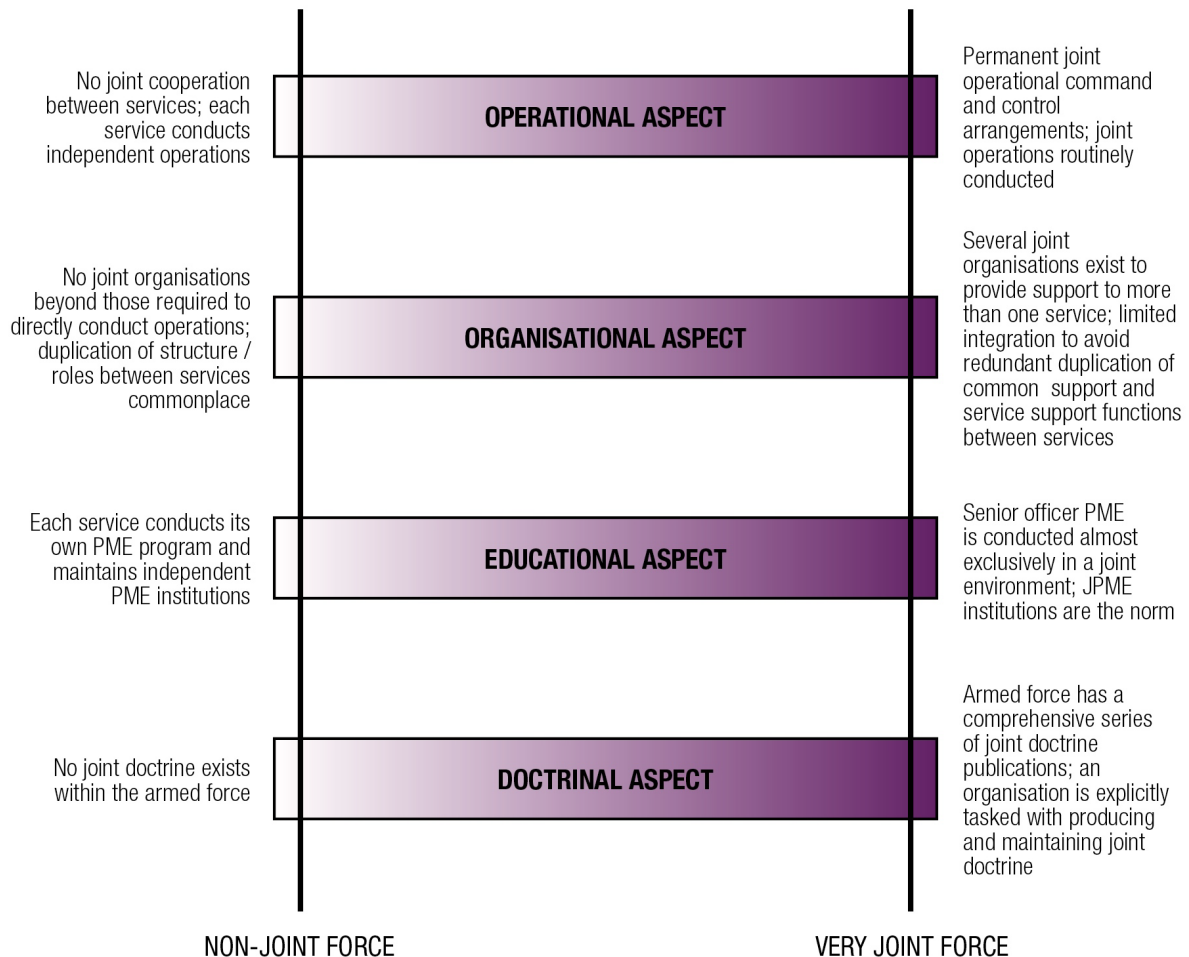
The final aspect of jointness is doctrinal. This aspect involves the development and proliferation of joint doctrine, something that occurred in most Western militaries from the early 1990s. Due to the prominent operational focus that characterised post-Gulf War jointness, joint operational doctrine has been (and continues to be) the most prominent type of joint doctrine, with tactical doctrine usually remaining within the purview of single services. Often, the production of doctrine itself has coincided with the establishment of a joint doctrine development centre, either as a separate organisation or as part of an existing joint organisation. In the US, for example, a Joint Doctrine Centre was established as a part of the reforms mandated by the Goldwater-Nichols Reorganization Act; and in the UK the Joint Doctrine and Concepts Centre was established in October 2000.<sup>15</sup>

## The joint spectrum: from non-joint to very joint armed forces

Considering jointness using the four aspects—operational, organisational, educational and doctrinal—enables a determination to be made as to what constitutes a fully-joint military, a partly-joint military and a non-joint military. If each aspect is imagined on a spectrum, the absence of each aspect from an armed force would be at one end and the maximum possible progression towards achieving each aspect would be at the other. This theoretical maximum is just before the point of *integration*—the point at which individual services cease to exist and are replaced by a single, amalgamated service that is responsible for all operations in all domains (more on this below). Figure 3.1 shows this spectrum, and the relative position and

characteristics of a 'non-joint' force and a 'very joint' force. Armed forces that could be described in a similar way to the description given at the very joint end of the spectrum could be said to be 'more joint' than those that could be better described in a similar way to the description given at the non-joint end of the spectrum.

**Figure 3.1: The aspects of jointness imagined as a spectrum, showing the relative position and characteristics of a non-joint force and a very joint force**



The descriptions given in Figure 3.1 of the non-joint force and the very joint force highlight that the very joint force has several advantages over the non-joint force. These advantages include enhancing economies of scale while reducing organisational costs, and creating a 'joint language' through education and doctrine that perpetuates and enhances a culture of joint operational success over the longer term. Furthermore, by applying the four aspects and the spectrum itself, one can begin to evaluate the jointness or otherwise of a country's armed forces – something that will be attempted in the next chapter.

## The optimum extent of joint reforms

Another theoretical aspect that needs to be considered is that there may be a threshold beyond which a force can become 'too joint'. From this point, jointness would become detrimental to military performance. Each service exists to fight and win in its own distinct domain; even though there are several points where these domains and therefore the operational requirements of each service overlap (these

overlaps are illustrated above in Figure 2.1). The aim of jointness ought to be to maximize the chances of success by fostering cooperation, creating efficiencies and capturing then implementing inter-service lessons learned. Jointness oversteps these goals is when it focuses too heavily on cost-cutting measures; on integration or unification for its own sake; or when the underlying motives are not internal to the military becoming joint and are also poorly implemented. In these instances, a drive towards jointness may have a detrimental impact on military performance.

Examples supporting the existence of this threshold are rare, probably due to most armed forces not having crossed it; however, one significant supporting example is pertinent, that being the *unification* of the Canadian Forces in 1968. In this year, Canada's ambitious Defence Minister Paul Hellyer imposed unification on the reluctant Canadian Forces. As a result of unification, the Royal Canadian Navy, Canadian Army and Royal Canadian Air Force were disbanded and replaced with a single organisation, the Canadian Forces. Although cost-cutting was a significant factor in this change, it is likely that it was also an attempt to bring about what would today be termed jointness. This desire is understandable given that at the time fierce (and operationally detrimental) rivalries existed between Canada's three services.<sup>16</sup>

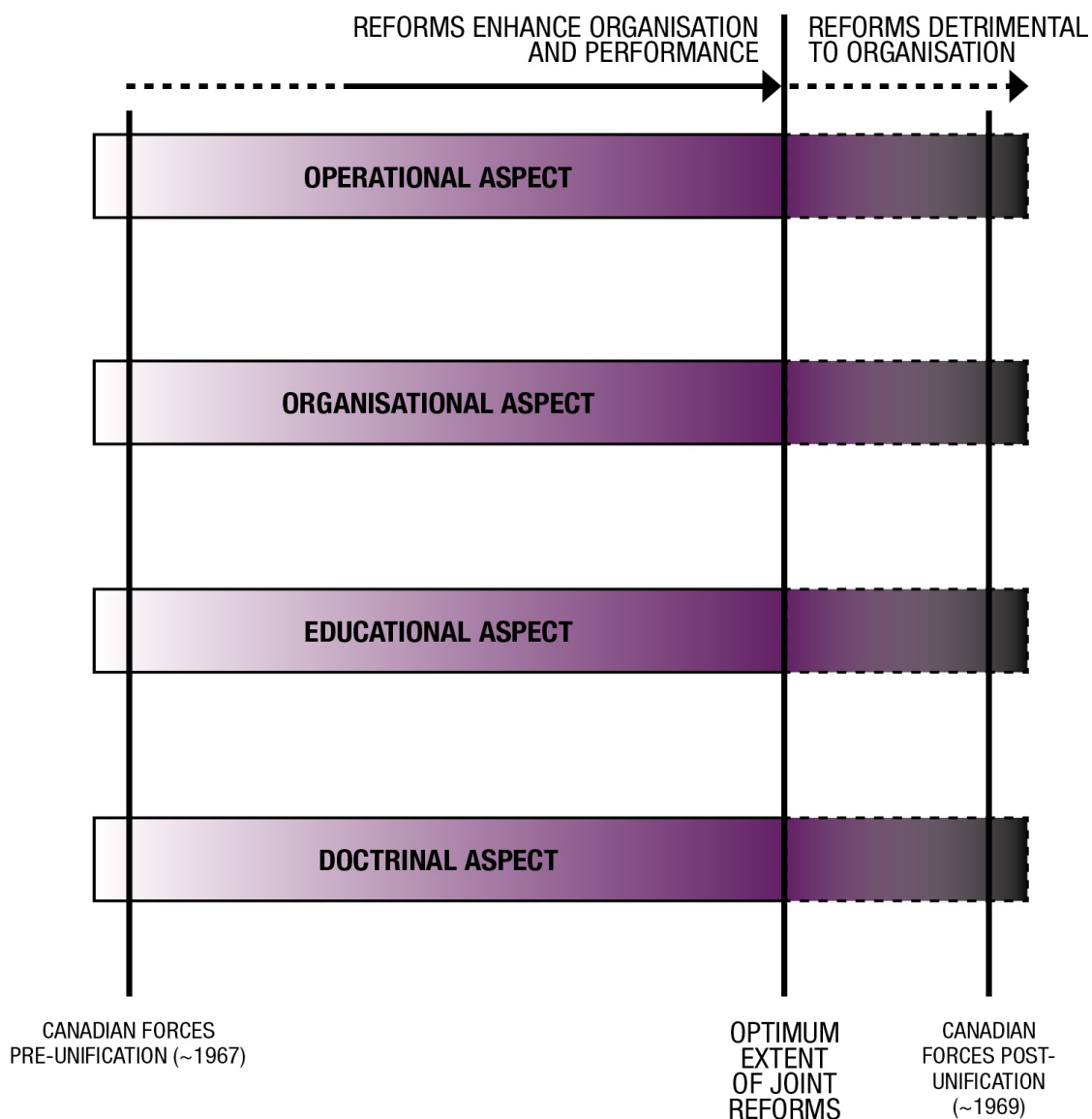
With the benefit of hindsight it can be seen that unification went too far. Associated reforms destroyed morale by abolishing single service traditions and degraded the force's professionalism as several senior officers resigned in protest, requiring the rapid promotion of an inexperienced cadre to take their places. But the reforms did not effectively eliminate inter-service rivalry, which lived on in the environmentally-focused commands that were established to replace the services. Nor did the reforms establish an adequate joint headquarters staff structure. Finally, the rapid pace of their introduction was also detrimental as it allowed no time for a joint (or unified) culture to develop.<sup>17</sup> It should therefore come as no surprise that unification ultimately failed. Beginning in the mid-1970s many organisational aspects of its reforms were progressively undone, a process that has continued gradually over several decades. Meanwhile, a separate trend towards operational jointness began in the Canadian Forces during the 1990s, paralleling similar joint reforms in allied militaries.

It is an axiom that, all else being equal, joint forces will outperform non-joint forces. The unification of the Canadian Forces suggests that this axiom requires a caveat. The caveat is that a force with balance between joint and separate service structures is best for a military seeking to remain optimised to fight well in all environments. A force with anything less *or anything more* than this optimum joint/service balance is likely to be sub-optimal. This theoretical threshold between positive and negative joint reform is shown in Figure 3.2, which extends the joint spectrum further to the right than is shown above in Figure 3.1 (the extended part of each aspect is shown in Figure 3.2 with a dashed outline). Figure 3.2 also shows the position of the Canadian Forces in the years immediately before and immediately after unification in 1968.

Now that the optimum extent of joint reforms has been represented visually, a hypothesis can be proposed regarding how the position of the 'optimum extent of joint reforms' is determined. Readers seeking to further or curtail additional joint reforms within one armed force or another are likely to be disappointed in this regard, because there is not a black-and-white, uniform tipping point beyond which joint reforms suddenly and consistently begin to have a negative impact. On the contrary, the optimum extent of joint reforms can only ever exist as a relative concept, and will always be context-dependent. The optimum extent of joint reforms is likely to differ

not only between different armed forces, but also within the same armed force over time. The unification of the Canadian Forces went beyond the optimum extent of joint reforms because it was imposed on them from outside and because multiple reforms were implemented at an extremely rapid pace.<sup>18</sup> Were it not for these facets, unification may not have crossed the optimum threshold at all.

**Figure 3.2: There may be an optimum extent of joint reforms, beyond which additional reforms are detrimental**



In the above discussion of the joint spectrum it was hypothesised that the maximum extent of joint reforms occurs immediately before integration. In the case of the Canadian Forces, unification *technically* included integration because it abolished the three services.<sup>19</sup> In practice, however, it did not eliminate single service cultures or rivalries, since these were able to transition to the new environmentally-focused commands established within the unified Canadian Forces. A difference between technical (i.e. legal) and cultural integration can therefore be observed, and a qualifier can be added to the hypothesis that the maximum extent of joint reforms occurs immediately before integration. This qualifier is that the point of integration within an armed force, and therefore the maximum possible extent of its jointness,

occurs not only when the individual services are technically amalgamated, but also at the point of cultural amalgamation between them. Before the maximum extent of joint reforms can be reached, and further reforms involve enhanced integration and not jointness, the reforms must have taken on a cultural as well as a technical component.

Finally, it must be remembered that the unification of the Canadian Forces constitutes only a single case-study. Further research is required before a definitive conclusion can be formed regarding the two hypotheses proposed in the preceding paragraphs but, alas, a lack of other, similar case studies is likely to prevent such a conclusion from being formed in the near future. Accordingly, these hypotheses are not explored any further herein. What can be tested and used as the basis for a more rigorous conclusion, however, are the four aspects of jointness themselves. These aspects provide a means to comparatively evaluate the extent of jointness in different armed forces. Such an application of the four aspects will be undertaken in the next chapter.

## Notes

<sup>1</sup> Elinor C. Sloan, *Modern Military Strategy: An Introduction* (London and New York: Routledge, 2012), pp. 49-64.

<sup>2</sup> Christopher R. Paparone & James A. Crupi, 'What is Joint Interdependence Anyway?', *Military Review*, Vol. 84, No. 5 (July/August 2004), pp. 39-41.

<sup>3</sup> Donald Lowe & Tim McKay, *Towards a Theory of Joint*, Defence Science and Technology Group Report No. DST-Group-DP-1362, July 2016, p. 10.

<sup>4</sup> An earlier version of the four aspects of joint was developed by this author to support an analysis of joint doctrine development in Australia, Canada and New Zealand. The version that appears herein is significantly more evolved. For the earlier version, see: Aaron P. Jackson, *Doctrine, Strategy and Military Culture: Military-Strategic Doctrine Development in Australia, Canada and New Zealand, 1987-2007* (Trenton: Canadian Forces Aerospace Warfare Centre, 2013), pp. 131-136. (Online: [http://publications.gc.ca/collections/collection\\_2013/dn-nd/D2-320-2013-eng.pdf](http://publications.gc.ca/collections/collection_2013/dn-nd/D2-320-2013-eng.pdf), accessed 27 October 2017).

<sup>5</sup> US Department of Defense (USDOD), *Unified Command Plan*, 27 April 2011 (online: [http://www.defense.gov/home/features/2009/0109\\_unifiedcommand/](http://www.defense.gov/home/features/2009/0109_unifiedcommand/), accessed 8 August 2014).

<sup>6</sup> Richard Cassidy, 'In the Footsteps of Others: Team NZDF's Quest for Jointness' in: Joel Hayward (Ed.), *A Joint Future? The Move to Jointness and its Implications for the New Zealand Defence Force* (Palmerston North: Massey University, 2000), p. 69; Richard M. Connaughton, 'Organizing British Joint Rapid Reaction Forces', *Joint Force Quarterly*, No. 26 (Autumn 2000), pp. 87-94; David Horner, 'The Higher Command Structure for Joint ADF Operations' in: Ron Huisken & Meredith Thatcher (Eds.), *History as Policy: Framing the Debate on the Future of Australia's Defence Policy*, Canberra Papers on Strategy and Defence No. 167 (Canberra: Australian National University EPress, 2007), pp. 143-61; G. L. Garnett, 'The Evolution of the Canadian Approach to Joint and Combined Operations at the Strategic and Operational Level', *Canadian Military Journal*, Vol. 3, no. 4 (Winter 2002-03), p. 4.

<sup>7</sup> Cassidy, 'In the Footsteps of Others', p. 69.

<sup>8</sup> David Horner, *Making the Australian Defence Force*, The Australian Centenary History of Defence Vol. 4 (South Melbourne: Oxford University Press, 2001), pp. 41-49.

<sup>9</sup> For further information on joint force design, see: Tim McKenna & Tim McKay, *Australia's Joint Approach: Past, Present and Future*, Joint Studies Paper Series No. 1 (Canberra: Defence Publishing Service, 2017), chap. 4.

<sup>10</sup> Melissa A. Schilling & Christopher R. Paparone, 'Modularity: An Application of General Systems Theory to Military Force Development', *Defense Acquisition Review Journal*, 1 July 2005, pp. 279-293.

<sup>11</sup> USDOD, *Capstone Concept for Joint Operations: Joint Force 2020*, 10 September 2012; Australian Department of Defence, *Future Joint Operating Concept 2030*, 25 March 2011 (online, [http://www.defence.gov.au/vcdf/docs/FJOC\\_UNCLASS.pdf](http://www.defence.gov.au/vcdf/docs/FJOC_UNCLASS.pdf), accessed 15 August 2015).

<sup>12</sup> Cassidy, 'In the Footsteps of Others', pp. 69-70.

<sup>13</sup> Defence Academy of the United Kingdom, *Joint Services Command and Staff College: Background* (online, <https://www.da.mod.uk/colleges/jscsc/About%20JSCSC>, accessed 25 December 2008).

<sup>14</sup> James R. Locher, 'Has it Worked? The Goldwater-Nichols Reorganization Act', *Naval War College Review*, Vol. 54, No. 4 (Autumn 2001), pp. 106-107; National Defense University, *History of the National Defense University* (online, <http://www.ndu.edu/info/history.cfm>, accessed 25 December 2008).

<sup>15</sup> The UK has since renamed this organisation Development Concepts and Doctrine Centre. Markus Mader, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era, 1989–2002*, Studies in Contemporary History and Security Policy No. 13 (Bern: Peter Lang, 2004), p. 363; Michael Codner, 'Purple Prose and Purple Passion: The Joint Defence Centre', *RUSI Journal*, Vol. 144, No. 1 (February/March 1999), pp. 36-40; US Joint Chiefs of Staff, *Joint Doctrine Capstone and Keystone Primer* (10 September 2001), pp. 91-92.

<sup>16</sup> R. J. Clark, *Joint Organisation: A Canadian Way Ahead* (Toronto: Canadian Forces College MDS Research Paper, Command and Staff Course 31, undated), pp. 14-15; Desmond Morton, *A Military History of Canada: From Champlain to Kosovo*, 4th ed. (Toronto, ON: McClelland & Stewart, 1999), pp. 250-254.

<sup>17</sup> Morton, *A Military History of Canada*, pp. 252-253.

<sup>18</sup> E. M. Carey-Hughes, 'Hellyer and the Unification of Canada's Armed Forces', *Baltic Security and Defence Review*, Vol. 14, No. 2 (2012), pp. 181-198.

<sup>19</sup> The term 'integration' has been used to describe pre-unification reforms to the Canadian services, and the use of the term commenced following the publication of Canada's 1964 Defence White Paper. The main component of this integration involved the creation of a joint National Defence Headquarters, and this component of the reforms was generally well received within the three services. Applying the model proposed in this chapter, it can be determined that these reforms fit within the organisational aspect of jointness. They do not constitute 'integration' in the same sense that the term is used in relation to the model proposed in this paper. Regarding integration in the 1960s Canadian armed forces, see: Morton, *A Military History of Canada*, pp. 250-251; Carey-Hughes, 'Hellyer and the Unification of Canada's Armed Forces', pp. 186-188.





## EVALUATING JOINTNESS WITHIN FOUR WESTERN ARMED FORCES

---

How do armed forces compare to the theoretical model proposed in Chapter Three? A comprehensive answer to this question would require a more detailed study than can be undertaken herein, but a cursory assessment is possible. This is due to the limited amount of data that is publically available. For understandable reasons, the armed forces studied herein have not released all of the information about their operations or force structures in particular. Accordingly, in this chapter eight simple indicative questions (two for each of the four aspects of jointness) are asked of the armed forces of the US, Britain, Australia and Canada. The questions have been kept intentionally simple and only unclassified, publically available data has been used to answer them as accurately as possible. Together, the answers to these questions give a rudimentary idea about the extent of jointness within each of these four armed forces and, importantly, enough information is available to allow for a comparative analysis to be subsequently undertaken. The eight questions are:

- Q1. Are there permanent joint operational command and control structures and joint operational organisations?
- Q2. What percentage of operations are joint?
- Q3. Are there permanent joint organisational structures that are not directly operational?
- Q4. To what extent has duplication between each service been minimised through the creation of joint organisations?
- Q5. Is joint professional military education (PME) for O4 and above common?<sup>1</sup>
- Q6. What percentage of PME institutions offering courses for O4 and above are joint?
- Q7. Does the armed force have a comprehensive series of joint doctrine publications?
- Q8. Does the armed force have an organisation explicitly tasked with developing and maintaining joint doctrine?

The answers to these questions are summarised in Table 4.1. Detailed answers to each question are subsequently given to accompany the data contained in the table. Finally, this chapter presents a summary and compares findings regarding jointness in each of the four armed forces examined. This highlights the extent of jointness in each of the armed forces studied, as well as identifying opportunities for further joint reforms that may be of benefit to them.

**Table 4.1: Summary by military of answers to questions about the four aspects of jointness**

	United States	Britain	Australia	Canada
<b>Q1</b>	Yes	Yes	Yes	Yes
<b>Q2</b>	100%	100%	100%	100%
<b>Q3</b>	Yes	Yes	Yes	Yes
<b>Q4</b>	Relatively the most duplication	Relatively medium level of duplication	Relatively medium level of duplication	Relatively the least duplication
<b>Q5</b>	Yes	Yes	Yes	Yes
<b>Q6</b>	66%	100%	100%	66%
<b>Q7</b>	Yes	Yes	Yes	Yes
<b>Q8</b>	Yes	Yes	Yes	Yes

### Q1: Are there permanent joint operational command and control structures and joint operational organisations?

The short answer to this question is 'yes'; there are permanent joint operational command and control structures, in particular operational level headquarters, in all four countries examined. The nature and extent of these structures and organisations varies by country, so an explanation of national arrangements is pertinent.

Given the global commitments and large size of the US military, its command structures and deployments are more complicated than those of its smaller allies. Higher-level command of US deployed forces is assigned to a Combatant Command, of which there are nine in total: six Unified Combatant Commands, which are regionally-based, and three Specified Combatant Commands, which are functionally structured with a global scope of responsibility. The nine Combatant Commands are listed below, and the areas of geographical responsibility of each of the six Unified Combatant Commands are shown in Figure 4.1.<sup>2</sup>

- US Africa Command (USAFRICOM) is responsible for operations in Africa.
- US Central Command (USCENTCOM) is responsible for operations in the Middle East.
- US European Command (USEUCOM) is responsible for operations in Europe and parts of Eurasia.
- US Northern Command is responsible for operations in North America.
- US Southern Command (USSOUTHCOM) is responsible for operations in Central and South America.
- US Pacific Command is responsible for operations in the Pacific, Oceania, East, Southeast and South Asia, and the eastern part of the Indian Ocean.

- US Special Operations Command (USSOCOM) is responsible for planning and conducting special operations.
- US Strategic Command is responsible for US nuclear force operations and for deterring and detecting strategic (i.e. nuclear) strikes against the US.
- US Transportation Command is responsible for the strategic movement of US forces.<sup>3</sup>

**Figure 4.1: The geographic areas of responsibility of the six US Unified Combatant Commands**



Each of the other three countries examined maintain their own joint operational command and control structures and permanent joint operational organisations; however, arrangements in all three countries are much simpler than the US arrangements. The UK and Australia both maintain a single organisation with the same global scope of responsibilities as eight of the nine US Combatant Commands combined. These organisations respectively are the Permanent Joint Headquarters (PJHQ) for the UK and Headquarters Joint Operations Command (HQJOC) for Australia.<sup>4</sup> Canada instead maintains three separate organisations: Canadian Joint Operations Command (CJOC); Canadian Special Operations Command; and Canadian Forces Intelligence Command, all of which have global operational responsibilities.<sup>5</sup> The additional US Combatant Command that these organisations do not duplicate is US Strategic Command. This is because the UK's nuclear assets are commanded via a different (strategic level) arrangement and Australia and Canada are not nuclear powers.<sup>6</sup>

Yet the simple answer to this question, that permanent joint command and control structures and joint operational organisations exist, hides what may be a more important piece of information: what is the extent of the operations that these organisations actually command? This more vital—and more detailed—information forms the answer to the next, related question.

## Q2: What percentage of operations are joint?

In answering this question it is first necessary to define exactly what constitutes a military operation. This is more difficult than it seems, as the military definition of the term 'operation' is incredibly broad: 'a military action or the carrying out of a strategic, tactical, service, training, or administrative military mission'.<sup>7</sup> By this definition practically everything a military does is an operation! An initial step that is useful in narrowing this definition down to workable proportions is to examine only undertakings that militaries designate as operations by the use of an official title, such as *Operation Desert Storm*, *Operation Enduring Freedom* or *Operation Iraqi Freedom*, to name a few famous examples. Yet even with this restriction applied, analytical barriers persist. For example, designated operations that are short-term and localised often take place within larger, longer-term designated operations. Should these smaller operations be considered on their own, or as an integral part of the larger operation, or both?

For the purposes of this paper, it helps to take the nature of joint cooperation requirements into account. Joint cooperation has historically tended to be more important for military forces seeking to sequence and link tactical actions, which are executed by force elements from each of the services. Every time a ship puts to sea, an infantry unit clears a position, or an aircraft conducts a sortie, it is technically operational. But despite this label, such small operational activities ultimately remain tactical in nature. Joint cooperation, and therefore this paper, is more concerned with what may better be called 'major operations' or 'campaigns', the latter of which is defined as 'a set of military operations planned and conducted to achieve a strategic objective within a given time and geographical area'.<sup>8</sup> The use of the word 'operations' within this definition reflects William F. Owen's observation that '[t]actics are planned and executed as operations'.<sup>9</sup>

The problem therefore becomes where to draw the line between declared operations that are local tactical actions and declared operations that fit within the above definition of a campaign. Fortunately the militaries under scrutiny here have, by virtue of their own organisational structures, provided a relatively easy way to determine where to draw this line. Each has officially adopted the concept that there are three 'levels of armed conflict', strategic, operational and tactical;<sup>10</sup> and each has established operational level headquarters to command designated operations that, using the above definitions, could more accurately be referred to as campaigns. In answering the question 'what percentage of operations are joint?' this paper examines declared operations commanded by, or with a commander that reports to, a designated 'operational level' headquarters.

Table 4.2 summarises these operations as at 1 July 2015, using only unclassified, publically available information.<sup>11</sup> The availability of this information varied between the countries studied, with the Australian and Canadian governments presenting a summary of their current operations online, while for the US and UK partial information was gathered from a range of disparate locations. Hence the data in Table 4.2 is likely to be either out-of-date and/or incomplete in the case of the US and UK, and is therefore of limited reliability. Despite this it is the best data publically available and accordingly it is still used for this paper.

**Table 4.2: Summary by military of operation names and chains of command (where known), as at 1 July 2015**

Country	Operation name (location in brackets)	Command arrangements	Totals
United States	Inherent Resolve (Iraq/Syria)	USCENTCOM	<p>Total number of US operations listed: 22</p> <p>Number under joint command structures: 13 (59 percent)</p> <p>Number under multinational or unknown command structures: 9 (41 percent)</p>
	Freedom's Sentinel (Afghanistan)	USCENTCOM	
	Onward Liberty (Liberia)	USAFRICOM	
	Observant Compass (Uganda)	USAFRICOM	
	Copper Dune (Djibouti) ( <i>currency unknown</i> )	USAFRICOM/USSOCOM (delineation of command unclear)	
	Jupiter Garret (Middle East) ( <i>currency unknown</i> )	USAFRICOM/USSOCOM (delineation of command unclear)	
	Octave Shield (Middle East) ( <i>currency unknown</i> )	USAFRICOM/USSOCOM (delineation of command unclear)	
	Ocean Shield (Indian Ocean counter piracy)	CTF-151, part of the naval forces component of USCENTCOM, reporting to USCENTCOM (note that this is a NATO operation)	
	Earnest Voice (Middle East) ( <i>currency unknown</i> )	May have previously been MNF-I (itself reporting to USCENTCOM), current command arrangements unknown	
	Nomad Shadow (Middle East) ( <i>currency unknown</i> )	May have previously been MNF-I (itself reporting to USCENTCOM), current command arrangements unknown	
	Juniper Shield (Trans-Sahara) ( <i>currency unknown</i> )	USAFRICOM	
	Joint Guardian (Kosovo)	USEUCOM (this is part of NATO KFOR)	
	Martillo (Central American isthmus)	JITF-South (reporting to USSOUTHCOM)	
	Atlantic Resolve (Atlantic/Europe)	USEUCOM	
	Resolute Support (Afghanistan)	USCENTCOM (this is the US component of NATO's ISAF)	
MONUSCO (Congo)	UN mission		
Multinational Force and Observers (Sinai)	Multinational mission		

Country	Operation name (location in brackets)	Command arrangements	Totals
	UNMIL (Liberia)	UN mission	
	MINUSMA (Mali)	UN mission	
	UNMISS (South Sudan)	UN mission	
	CTF-150 (maritime counter-terrorism in Indian Ocean and Persian Gulf)	CTF-150 (this is a NATO mission)	
	CTF-152 (Persian Gulf maritime security)	CTF-152 (this is a NATO mission)	
United Kingdom	Shader (Iraq/Syria)	No data available	<p>Total number of UK operations listed: 11</p> <p>Number under multinational or unknown command structures: 11 (100 percent)</p>
	Toral (Afghanistan)	No data available	
	Joint Guardian (Kosovo)	Part of NATO KFOR	
	Atlanta (Indian Ocean counter piracy)	Part of an EU operation	
	MONUSCO (Congo)	UN mission	
	Gritrock (Sierra Leone counter Ebola) ( <i>currency unknown</i> )	No data available	
	UNFICYP (Cyprus)	UN mission	
	Ocean Shield (Indian Ocean counter piracy)	CFT-151 (this is a NATO mission, the UK component of which seems to report to Allied Maritime Command, co-located with PJHQ but itself reporting to NATO Supreme Allied Command)	
	CTF-150 (maritime counter-terrorism in Indian Ocean and Persian Gulf)	CTF-150 (this is a NATO mission)	
	CTF-152 (Persian Gulf maritime security)	CTF-152 (this is a NATO mission)	
Australia	Accordion (Middle East region)	HQJOC	<p>Total number of Australian operations listed: 10</p> <p>Number under joint command structures: 10 (100 percent)</p>
	Aslan (South Sudan)	HQJOC	
	Manitou (Middle East)	HQJOC	
	Mazurka (Sinai)	HQJOC	
	Okra (Iraq)	HQJOC	
	Paladin (Israel/Lebanon)	HQJOC	

Country	Operation name (location in brackets)	Command arrangements	Totals
	Palate II (Afghanistan)	HQJOC	
	Resolute (Australian territorial waters/EEZ)	Maritime Border Command (interagency; ADF component reports to HQJOC)	
	Highroad (Afghanistan)	HQJOC	
	Southern Indian Ocean (Indian Ocean)	HQJOC	
Canada	Lentus (domestic HADR)	CJOC	<p>Total number of Canadian operations listed: 20</p> <p>Number under joint command structures: 20 (100 percent)</p>
	Hamlet (Haiti)	CJOC	
	Nunalivut (high Arctic)	CJOC	
	Nevus (Ellesmere Island)	CJOC	
	Nunakpot (Arctic)	CJOC	
	Snowgoose (Cyprus)	CJOC	
	Sabot (domestic policing support)	CJOC	
	Caribbe (Caribbean Sea/Eastern Pacific Ocean)	CJOC	
	Limpid (territorial waters/Arctic/EEZ)	CJOC	
	Nanook (domestic high Arctic)	CJOC	
	Reassurance (central and eastern Europe)	CJOC	
	Kobold (Kosovo)	CJOC	
	Unifler (Ukraine)	CJOC	
	Crocodile (Congo)	CJOC	
	Soprano (South Sudan)	CJOC	
	Calumet (Sinai)	CJOC	
	Foundation (Middle East)	CJOC	
	Impact (Iraq)	CJOC	
	Jade (Israel/Lebanon)	CJOC	
	Proteus (Israel)	CJOC	

From this data it can be observed that 100 percent of Australian and Canadian operations are joint, whereas only 59 percent of US operations *are verifiably so*. Data on the remaining 41 percent of US operations, and on all UK operations, is either incomplete or indicates that national forces are deployed as part of multinational operations. To overcome analytical problems arising from the incomplete nature of the data on US and UK operations, the information in Table 4.2 must be balanced against other data on each country's command arrangements. The nature of 'operational command', 'operational control' and other national-specific states of command as legal frameworks for deployment of forces is therefore of particular importance.

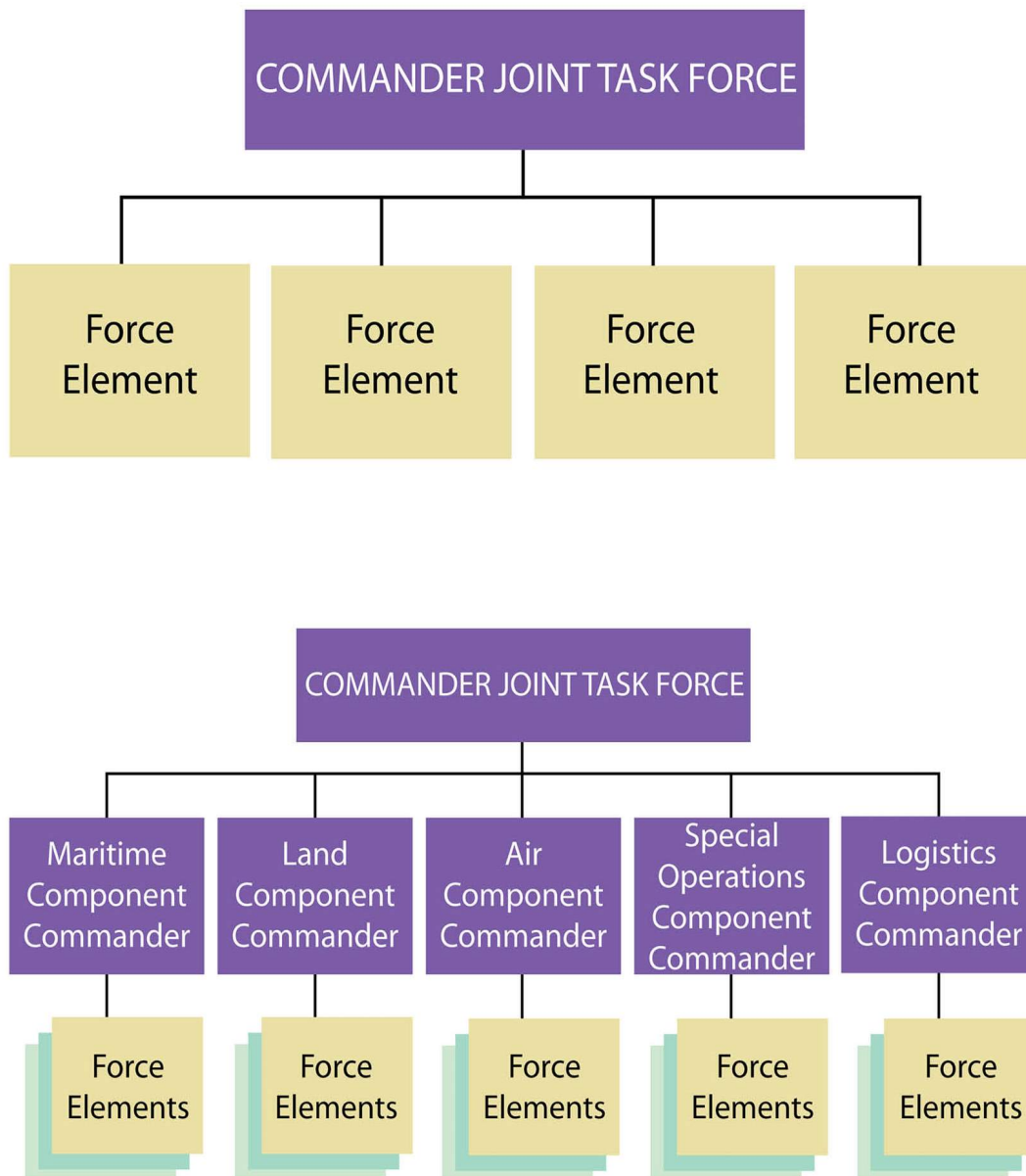
In the case of the UK, Australia and Canada, operational command responsibilities are assigned to the joint operational headquarters identified above in answer to Question 1, even for national contributions to multinational missions, and all of these operations are therefore technically joint. Although the available data on Australian and Canadian operations (summarised in Table 4.2) is sufficient to determine that all operations these militaries conduct are joint, in the case of the UK the data on each individual operation is incomplete. Yet the Ministry of Defence's PJHQ website asserts that PJHQ exercises 'operational command of UK Forces assigned to multinational operations led by others'.<sup>12</sup> A list of exemptions to the scope of PHJQ's operational command is given, including strategic nuclear forces, domestic operations such as counter-terrorism, and forces in UK territorial waters and airspace. As none of these areas of exemption apply to the operations summarised in Table 4.2, it is highly likely that all eleven UK operations listed are jointly commanded by PJHQ.

Due to differences in scale, command arrangements in the case of US forces are more complicated. Despite this, and similarly to the command arrangements of its smaller allies, higher-level US command arrangements result in all operationally deployed US forces being commanded by either a Unified or Specified Combatant Command, and therefore all deployed forces are technically commanded jointly.<sup>13</sup> Hence, it can be determined that technically all operations conducted by all four countries are commanded jointly, and the statistics shown in Table 4.2 can be amended to 100 percent for all four countries. Accordingly, this is the figure shown above in Table 4.1.

However, this figure hides yet another complicating factor. This factor applies to all four militaries studied, although it affects the US more drastically and regularly due to the relatively larger scale of many US operations. This factor is that although they are *technically* commanded jointly, many operations include 'functional components' that consist of elements of only a single service. This is shown in Figure 4.2, which has a joint task force commanded directly by a joint commander at the top, and one commanded through component commanders at the bottom.<sup>14</sup> Given that components are often (but not always) environmentally determined, and therefore often consist of elements of the same service, the joint status of their command becomes blurred.

For example, should an army unit in an area of operations entirely on land, but which reports to the land component commander of a joint operation, be considered as a joint unit because of the overall operational command arrangements at higher levels, or as an army unit in a land environment because that is reflective of the local conditions of that unit? An actual example of this kind of arrangement is *Operation*



**Figure 4.2: Alternate command methods: direct (top) and component (bottom)**

*Iraqi Freedom*, where land force elements were deployed in separate geographic ‘areas of responsibility’ under an overall joint and multinational command arrangement.<sup>15</sup> Another example is *Operation Unified Protector*, a North Atlantic Treaty Organization (NATO)-led operation that involved an air component commanded from Izmir, Turkey, and a maritime component commanded from Naples, Italy, where the overarching joint force commander was also located. Due to the nature of this operation, it did not include a land component.<sup>16</sup>

For the purposes of this paper the legal technicality that at higher levels these operations are commanded jointly is sufficient for the entire operation to be deemed joint. However, the brief discussion above highlights an area for possible future research, which may yield a more comprehensive answer to this question than is possible here.

### Q3: Are there permanent joint organisational structures that are not directly operational?

This simple closed question hides a definitional grey area, which regards the extent to which several higher-level organisational structures should be considered joint, since many of them are primarily staffed by civilians and are part of the Department of Defense (US), Ministry of Defence (UK), Department of Defence (Australia) or Department of National Defence (Canada), rather than part of the armed forces. For the purposes of this paper, the division of responsibilities between senior military commanders and senior civilians is used as the mark of delineation between permanent joint organisational structures that are not directly operational and civilian organisations supporting a military. The former ultimately come under the command of a senior military commander, whereas the latter report to senior civilian staff. Although satisfactory for the purposes of this analysis, this division is nevertheless arbitrary and it highlights an area for further research.

Furthermore, the term ‘not directly operational’ is understood to mean any permanent joint organisation that is not subordinate to, or part of, either a joint operational command and control structure (as elaborated above in the answer to Question 1) or a joint task force. Although joint educational and doctrine development organisations fit into this category, these are not discussed here since they are addressed separately below.

Taking these definitional limitations into account, the following joint organisational structures that are not directly operational exist in the countries examined. It should be noted that only a few key organisations are listed below for each country. This list should therefore be considered indicative rather than comprehensive.

- **United States.** As with the answers to the previous questions, the large size of the US military has resulted in unique (and more complex) organisational structures relative to its three smaller allies. Regarding the answer to this question, the most pertinent information available is briefly summarised below.
  - The highest-level non-operational joint organisation is the Joint Chiefs of Staff, a committee composed of the Chiefs of each of the four services (Navy, Army, Air Force and Marine Corps), the Chief of the National Guard Bureau, a Chairman and a Vice Chairman. The Chairman in particular is the senior military advisor to both the (civilian) Secretary of the Department of Defense and the US President. However, it is noteworthy that while Combatant Commanders report *through* the Joint Chiefs of Staff, the committee does not actually exercise command over them – this function remains with the Secretary and, through them, the President.<sup>17</sup>
  - A Joint Staff sits below the Joint Chiefs of Staff committee and assists it to achieve its mandate. Although this staff effectively constitutes a strategic-level joint headquarters, it has no formal power to issue directions to Combatant Commands. Despite this, the Joint Staff has branches that co-ordinate several supporting functions at the strategic level, including personnel, intelligence, logistics, and cyber.<sup>18</sup>

- US Transportation Command, although a Specified Combatant Command, is responsible for the strategic movement of US forces. In addition to directly supporting operations by moving personnel for the other eight Combatant Commands, it also provides indirect support through the strategic movement of a range of force elements and cargo for the services and for other Defense agencies.<sup>19</sup> It therefore qualifies to be listed here in addition to above.
- A Defense Logistics Agency, commanded by a three star, employs over 25,000 personnel and provides logistics support to the US Services.<sup>20</sup> From the available data this appears to be a mixed military and civilian organisation; however, the numerical divide between uniformed and civilian personnel is not publically available. Hence, it is possible that this is a civilian organisation with a smattering of military personnel throughout, rather than a joint military organisation. Despite this missing data, the organisation is considered joint for the purposes of discussion here because it is commanded by a senior military officer. This agency is supported by, or supports, several other joint logistics organisations that have a much more limited (and specific) focus.<sup>21</sup>
- There are seventeen other 'Defense agencies' in the US Department of Defense. As with the Defense Logistics Agency, it is difficult from the available data to determine if these are joint military organisations or predominantly civilian organisations that include military personnel within them. However, it is noteworthy that these agencies have been established 'to provide for the performance, on a [Department of Defense]-wide basis, of a supply or service activity that is common to more than one Military Department when it is determined to be more effective, economical or efficient to do so'.<sup>22</sup> By this description, providing it is predominantly a military organisation with a military commander, any of these agencies would qualify as a permanent joint organisational structure for the purposes of this paper's analysis.
- **United Kingdom.** The British Armed Forces have established several joint organisational structures that are not directly operational, including:
  - The Chiefs of Staff Committee, which is the UK equivalent to the US Joint Chiefs of Staff, is chaired by the Chief of the Defence Staff. Membership includes the heads of the three services (Navy, Army and Air Force), as well as the Vice Chief of Defence Staff and Commander Joint Forces Command.<sup>23</sup>
  - Other UK joint organisations include a Joint Helicopter Command and a Cyber Security Operations Centre, as well as several overseas permanent joint operating bases.<sup>24</sup>
  - The UK formerly had a joint Defence Logistics Organisation; however, in 2007 it was amalgamated with another part of the Ministry of Defence to form Defence Equipment and Support, which has been described as 'a bespoke trading entity, and arm's length body of the Ministry of Defence'.<sup>25</sup> Although this organisation contains several military personnel, the majority of its work force is civilian, as is its Chief Executive.<sup>26</sup> Although it provides logistics support to UK joint forces, it is

considered for the purposes of discussion herein as a civilian Ministry of Defence organisation and not as joint military organisation.

- **Australia.** In the Australian Defence Force (ADF) the Vice Chief of the Defence Force, a three-star officer, commands several joint organisations that provide support to operations and non-operational activities, and which can be considered as not directly operational due to their scope.<sup>27</sup> These organisations include:
  - Joint Capability Group, commanded by a two-star, which includes amongst other branches a Joint Logistics Command to provide a wide range of logistics support functions and a Joint Health Command to provide healthcare for ADF members.<sup>28</sup>
  - A Force Design Division, to develop plans for ‘a balanced and affordable future force’.<sup>29</sup>
  - A Joint Capability Management and Integration Division, which conducts joint capability management functions, as well as joint testing and evaluation, and integration and interoperability assurance.<sup>30</sup>
  - The ADF also has a Chiefs of Service Committee that includes a similar membership to its UK equivalent. It is chaired by the Chief of Defence Force.<sup>31</sup>
- **Canada.** In Canada, the following joint organisational structures are not directly operational:
  - The Armed Forces Council, chaired by the Chief of the Defence Staff, is Canada’s equivalent to the Joint Chiefs of Staff. Its membership is, however, much broader than any of its allies’ equivalents and in addition to the Chief and Vice Chief of the Defence Staff, and the three service chiefs (Navy, Army and Air Force), it includes the Chief of Military Personnel, the Chief of Reserves and Cadets, the Chief of Defence Intelligence, the Judge Advocate General and the Canadian Forces Chief Warrant Officer. Unlike Australia and the UK, membership of this committee does not include the Commander of Canada’s joint operational level headquarters.<sup>32</sup>
  - A Strategic Joint Staff provides strategic-level guidance to the Chief of Defence Staff.<sup>33</sup> This staff seems to have a similar role to that played by the Joint Staff in the US military.
  - The Chief of Military Personnel, a three-star officer, is responsible to the Chief of Defence Staff for a wide range of personnel matters.<sup>34</sup> The scope of their command includes a Logistics Branch and a Communications and Electronics Branch.<sup>35</sup>

In light of the existence of these organisations, the simple answer to Question 3 is ‘yes’ for all four militaries examined; this is the answer shown in Table 4.1. As with Question 1, however, this simple answer to a closed question hides what may be a more important indicator of jointness: to what extent have these joint organisations eliminated the duplication of support and service support functions between each service? This is addressed in the answer to the next, related question.

## Q4: To what extent has duplication between each service been minimised through the creation of joint organisations?

As it pertains to the organisational aspect of jointness, rather than to the operational aspect, the answer to this question will focus on organisational structures that were not addressed in Question 1 and Question 2. For simplicity the below information is broken into two components. First, it addresses support and service support force elements. The terms 'support' and 'service support' are respectively defined as 'the action of a force, or portion thereof, which aids, protects, complements or sustains any other force'; and 'the logistic actions, processes, functions and services that are undertaken during delivery of support to a combat force or combat support force element'.<sup>36</sup> In other words, they are concerned with force elements that provide both direct and indirect support to combat force elements.

Second, the answer below also addresses some aspects of combat force elements, however only permanent force structures that exist outside of operational headquarters and force assigned units are discussed here. This is because operational headquarters and force assigned units have been discussed in the answers to Question 1 and Question 2. It must also be noted that command of the forces discussed here may be assigned to operational headquarters from time to time, occasionally for lengthy periods. Hence, the focus here is on long-term force structures, not on temporary force assignments.

So, to what extent has the establishment of the aforementioned joint support and service support force elements (see Question 3) been accompanied by the elimination of duplication of these functions between services? Although this is an upfront question, there is very little data available to answer it. Each of the services in all four countries maintain personnel categories and trades in areas such as logistics, health and maintenance, however it appears from the available data that the organisations that include these personnel are either tactical or come under command of the joint organisations listed under Question 3.

For example, the largest single service combat service support force elements in any of the four countries studied are the US Army's combat services support brigades, of which there are five (including two each within both the regular and reserve forces, and another within Special Operations Command).<sup>37</sup> Each of these brigades doctrinally contains 3,000 to 5,000 personnel. Yet despite their size they are nevertheless tactical organisations and as the bulk of joint coordination is required at operational and strategic levels, the control of such organisations by single services seems appropriate. Similar organisations exist in the UK, Australia, Canada, albeit that they are smaller in size due to the smaller overall size of these armed forces. In the British Army, there is one regular combat service support brigade and a reserve combat service support regiment (the size of the latter is not specified). In Australia, there is one combat service support brigade, with various smaller organisations scattered throughout the force.<sup>38</sup> Likewise, all four countries navies contain fleet units with similar service support roles, and their air forces contain various supply units that fulfil service support roles, as does the US Marine Corps.

Force elements with combat support roles are more numerous in each of the four armed forces, and include units with engineering; intelligence; military police; nuclear, biological and chemical defence; and communications roles. In armies (and the US Marine Corps) these force elements are formed into units by function; in navies, combat and service support vessels all perform several of these functions in addition

to their primary role; and in air forces a mixture of ground-based support units and various airborne platforms fulfil these roles.<sup>39</sup>

Notwithstanding the difference in force structures between services, which reflects their unique primary operating domains and histories, the key consideration for this paper is that all of these support and service support functions have tactical roles. Supporting them at operational and strategic levels are the joint support and service support organisations listed in the answer to Question 3. No data was found to indicate that the individual services duplicate joint organisations such as the US Defence Logistics Agency, the UK Defence Logistics Organisation, Australia's Joint Logistics Command or Canada's Logistics Branch. Similarly, while data indicated that each service managed the career pathways of their own personnel, no data was found indicating that joint personnel and health support organisations were duplicated within each service in any country studied. Organisations such as army field hospitals, for example, are tactical. At higher levels and in non-operational contexts, joint health and medical support organisations exist in each armed force, single service equivalents do not.<sup>40</sup>

All four armed forces examined have fairly similar arrangements in place within each service, as well as jointly (as indicated in the answer to Question 3), with two key exceptions. These are the UK's Joint Helicopter Command and the Canadian Forces Joint Operational Support Group. Both of these organisations fulfil support or combat service support roles that are split between services in the other armed forces studied. Although it is a subordinate unit to Army Headquarters, the UK Joint Helicopter Command is a joint support unit comprised of a mix of navy, army and air force rotary wing units. Its structure has enabled efficiencies to be made in several supporting areas, in particular regarding service support.<sup>41</sup>

The Canadian Forces Joint Operational Support Group has both support and service support elements, and incorporates logistics, health, engineering, communications and military police units, amongst others. It is a joint unit and appears to be manned by members of all three services as well as civilian staff, and although its command chain could not be confirmed with the available data it is likely that it is part of a broader joint Canadian Forces structure (rather than being subordinate to a single service).<sup>42</sup> It also appears to have both tactical and higher level functions, fulfilling roles equivalent to those performed in the US by both the Defence Logistics Agency and various single service organisations such as the Army's service support brigades.

Moving to the second component of this question, to what extent are combat forces replicated by each service within the four armed forces studied? In assessing this question, the force structure of each service was examined to determine where, first, a service operated a combat force in the primary operating domain of another service and, second, where this was a duplication of the forces of the service that primarily operated in this domain. As a result of this focus, some discrepancies are not substantially addressed here. For example, Canadian maritime helicopters are flown by Canadian Air Force personnel posted on board Canadian Navy vessels, whereas in the other three navies examined operate their own helicopters. Although this makes the Canadian Forces more joint in this instance, because there is no duplication (the Canadian Navy does not operate its own helicopters, and the air forces of the other three countries do not routinely fly helicopters that are stationed on board navy ships) this national difference is not addressed here.<sup>43</sup>

Of the four armed forces studied, the US military has the most duplication between services. The Army, Navy and Marine Corps (in addition to the Air Force) all maintain fixed wing aircraft fleets; the Army (in addition to the Navy) maintains several landing craft; and all four services as well as Special Operations Command maintain their own helicopter fleets and unmanned aerial vehicle (UAV) fleets.<sup>44</sup> In all of these cases each service operates the same models of various platforms, meaning that duplication of corresponding support and service support functions is also likely in support of these platforms.

The other three armed forces studied have some duplication, but not as much as the US military. In the UK, the Fleet Air Arm includes a dozen aircraft (creating limited overlap with the Air Force); and the Army (as well as the Air Force) operates UAV, although it is noteworthy that the army's UAV are medium while the air force's are heavy. The UK's helicopter fleet is contained in the Joint Helicopter Command, and its amphibious and landing craft are divided between the Navy and Royal Marines by vessel type, which has eliminated duplication between services in these areas (so long as one considers types of platforms in preference to the capabilities they provide).<sup>45</sup> In Australia, the Army and Navy both maintain fleets of helicopters and the Army and Air Force both maintain fleets of UAV, although in these areas each service maintains different types of aircraft. As with the UK, the Australian Army's UAV are medium, while the Air Force operates heavy UAV.<sup>46</sup> Finally, in Canada the Army is the only service that operates UAV (these are classed as 'light'; unlike the other three armed forces studied, Canada does not appear to have a heavy UAV capability). Furthermore, as mentioned above, all helicopters in the Canadian Forces are operated by the Air Force regardless of the domain they primarily operate in.<sup>47</sup> Hence, of the four countries studied, Canada has the least amount of duplication between its three services.

Looking collectively at the data above about the combat, support and service support force elements of all four armed forces, it can be determined in answer to Question 4 that the US has the most duplication between services and Canada has the least. Australia and the UK are somewhere in the middle. As with the answers to previous questions, the sheer size of the US military may go some way towards explaining this result, however this can only be considered a partial mitigating factor and more joint cooperation could easily result in reduced duplication in some key areas. This is revisited below in the concluding part of this chapter.

Despite the discrepancy between them, all four armed forces nevertheless contain several joint structures and levels of duplication today are far less than what was evident in each force merely half a century ago. Each of the four armed forces is therefore considered to be fairly close to the 'very joint' end of the joint spectrum (see Chapter Three), despite the relative difference that has been determined here.

Finally, before moving on, one more caveat must be elaborated. This is that although the *relative* extent of jointness between forces can be determined from the data available, the *absolute* extent of jointness within each force cannot be. As the data available is only partial, observations can be made regarding differences between each armed force and a comparative determination has been made based on these observations. But the overall extent of jointness in each force remains obscured by the lack of complete information. As a result, percentages are not given and the precise extent of the difference between each armed force cannot be measured in numerical or percentage terms. Hence, the answer to this question has qualitatively determined which force is relatively more or less joint. Beyond this comparative

observation, this paper does not attempt to quantify and any attempt to do so in the future will require the conduct of further research based on more comprehensive data than was available for this study.

## Q5: Is joint professional military education for O4 and above common?

The short answer to this question is 'yes'; however, in the US and Canadian cases there are some qualifiers. In the UK and Australia all PME for O4 and above is conducted at joint institutions, regardless of the member's service. This appears to be universal across their armed forces.<sup>48</sup> In Canada, this appears to usually also be the case, although the army maintains its own Command and Staff College and it is not clear whether attendance at this college *only* is sufficient for promotion to senior ranks. A key source of this ambiguity is the Canadian Army Command and Staff College website, which states that the college focuses on tactical courses but also states that it runs an 'operations course'.<sup>49</sup>

In the US, there are both joint and single service PME institutions (these are individually listed as part of the answer to the next question) and officers may attend either type of institution, allowing the possibility of their progression through the ranks without attending a joint PME institution at all. However, this lack of attendance at particular institutions hides the nature of PME delivery in the US military since the implementation of the Goldwater-Nichols Act, which specifies that officers must attend a joint PME-accredited period of study prior to qualifying as a 'joint specialty officer' and becoming eligible to serve in certain joint postings. This specialty is an essential pre-requisite for promotion to O7 (i.e. one star) or higher, however the educational components of the specialty are usually completed much earlier in an officer's career.<sup>50</sup>

To gain accreditation as a joint PME provider, PME institutions must dedicate a portion of their curriculum to teaching joint subjects. The institutions that are accredited are indicated in the answer to the next question; suffice to say, most US single service PME institutions offering courses for O4 and above are accredited.<sup>51</sup> Furthermore, each year each of the US services assign some of their personnel to attend PME courses conducted by the institutions of the other services. Although data about the exact number of officers that participate in such programs could not be found for this study, anecdotal evidence suggests that such exchanges affect several hundred officers per year.<sup>52</sup> This results in an additional aspect to the joint education of the selected service members, as they are immersed in the culture of another service while they complete the course to which they have been assigned.

Hence, despite once again facing challenges arising from having access only to partial information, there is nevertheless enough information available to enable this question to be answered in the affirmative for each of the armed forces studied. The different arrangements in the US case, while achieving the same result regarding joint PME for O4 and above, are revisited in the concluding section of this chapter as they provide a contrast that yields some interesting observations for more detailed comparative discussion.



## Q6: What percentage of professional military education institutions offering courses for O4 and above are joint?

This question adds detail to the answer to the last question by providing a different perspective on the same aspect of jointness. Where the previous question focused on a key target audience of joint PME, military officers at the O4 level and above, this question focuses on PME institutions and their constituent centres/colleges/schools/etc. These institutions are listed in Table 4.3, which also shows what percentage are joint or, in the US case, accredited as joint PME providers.<sup>53</sup> The following notes are applicable to the information contained in the table:

- Joint institutions listed in the centre column are denoted by italics and the symbol (j).
- US single service institutions that are joint accredited in accordance with the provisions contained in the Goldwater-Nichols Act and subsequent legislation are denoted by the symbol (ja). Unless stated otherwise, joint institutions denoted by the symbol (j) are also accredited.
- Institutions often have component centres/colleges/schools/etc. that run different courses (often aimed at officers at different points in their careers). These component centres/colleges/schools/etc. are listed below their overarching institution using bullet points.
- The table's focus is on institutions and not courses. The institutions listed often run several discrete programs, which are not individually mentioned in the table.
- Some centres/colleges/schools/etc. within listed overarching institutions are not listed, while others are. Selection for inclusion in the table was based on those centres/colleges/schools/etc. that offer their own courses; those not listed contribute to courses taught by their overarching institution but do not offer their own courses.

**Table 4.3: Institutions offering professional military education courses for O4 and above**

Country	Institution	Totals
United States	<i>National Defense University (j)</i> - <i>College of International Security Affairs (j)</i> - <i>The Eisenhower School (j)</i> - <i>Information Resources Management College (j, although only selected students undertake joint accredited courses)</i> - <i>National War College (j)</i>	Number of institutions and component centres/colleges/schools/etc.: 32
	<i>Joint Forces Staff College (j)</i> - <i>Joint Advanced Warfighting School (j)</i> - <i>Joint and Combined Warfighting School (j)</i> - <i>Joint C2 and Information Operations School (j, but does not teach joint accredited courses)</i> - <i>Joint Continuing and Distance Education School (j)</i>	Number under joint command structures and/or joint accredited: 21 (approx. 66 percent)
	<i>National Intelligence University (j)</i>	

Country	Institution	Totals
	<p><i>Joint Special Operations University (j; but does not seem to be accredited)</i></p> <p>Naval War College (ja) - College of Naval Warfare (ja) - College of Naval Command and Staff (ja) - College of Operational and Strategic Leadership</p> <p>Marine Corps University (ja) - Command and Staff College (ja) - Marine Corps War College (ja) - School of Advanced Warfighting - Strategy and Policy Course - Expeditionary Warfare School</p> <p>US Army War College (ja)</p> <p>US Army Command and General Staff College - Command and General Staff School - School of Advanced Military Studies (ja) - School for Command Preparation</p> <p>Air University - School of Advanced Air and Space Studies - Air War College (ja) - Air Command and Staff College (ja) - Squadron Officer College</p>	<p>Note: Despite the caveats listed in the centre column of this table, the figure above for US jointly commanded and/or accredited institutions includes both the Information Resources Management College and the Joint Special Operations University</p>
United Kingdom	<p><i>Defence Academy of the United Kingdom (j)</i> - <i>Joint Services Command and Staff College (j)</i> - <i>Royal College of Defence Studies (j)</i></p>	<p>Number of institutions and component centres/colleges/schools/etc.:</p> <p>3</p> <p>Number under joint command structures:</p> <p>3 (100 percent)</p>
Australia	<p><i>Australian Defence College (j)</i> - <i>Australian Command and Staff College (j)</i> - <i>Centre for Defence and Strategic Studies (j)</i></p>	<p>Number of institutions and component centres/colleges/schools/etc.:</p> <p>3</p> <p>Number under joint command structures:</p> <p>3 (100 percent)</p>
Canada	<p><i>Canadian Defence Academy (j)</i> - <i>Canadian Forces College (j)</i></p> <p>Canadian Army Command and Staff College</p>	<p>Number of institutions and component centres/colleges/schools/etc.:</p> <p>3</p> <p>Number under joint command structures:</p> <p>2 (approx. 66 percent)</p>

As can be seen from the table, the percentage of joint PME institutions is 100 percent for the UK and Australia, and approximately 66 percent for the US and Canada. As stated in the answer to Question 5, in the Canadian case it is unclear whether or not the Canadian Army Command and Staff College is tactically or operationally focused, and whether attendance there alone is sufficient to progress beyond O4 level. It has been included here due to this ambiguity.

## Q7: Does the armed force have a comprehensive series of joint doctrine publications?

The answer to this question is 'yes' for all four armed forces. The reasons for this answer are listed below for each.

- **United States.** As at 2 December 2016, the US joint doctrine hierarchy included 79 publications, of which 44 were under revision, plus an additional four under development. There were also seven 'current' joint doctrine notes (JDN), which are shorter publications designed to prompt stakeholder feedback on a subject before the JDN is expanded into a doctrine publication.<sup>54</sup> Most of these publications are unclassified and available online.<sup>55</sup>
- **United Kingdom.** Where possible the UK adopts NATO doctrine in preference to producing its own publications, however it must be noted that it frequently contributes during the development of NATO doctrine publications. As a result, the UK maintains a limited joint doctrine hierarchy, with 20 Joint Doctrine Publications available online.<sup>56</sup> These are supplemented by seven NATO combined joint doctrine publications and seven JDN.<sup>57</sup> It is unknown if any additional joint doctrine publications have been produced but are not available online, since there is no online UK equivalent to the US joint doctrine hierarchy chart referred to above.
- **Australia.** Details of the Australian joint doctrine hierarchy are not currently listed online and although several joint doctrine publications have previously been released to the public, these are not currently available online either. Research conducted by this author for a previous (unclassified and publically available) project determined that the ADF's joint doctrine hierarchy contained over seventy publications as of 2007.<sup>58</sup> Due to the author's employment history within the Australian Department of Defence, it has been possible to determine that this extensive hierarchy is still in existence and that ADF joint doctrine publications continue to be maintained and published internally for use by the ADF.
- **Canada.** A Canadian Forces joint doctrine hierarchy consisting of 13 publications was included as an annex to the first chapter of the 2009 (first) edition of the Canadian Forces' capstone doctrine publication.<sup>59</sup> A note included with this annex directed readers to the *Joint Doctrine Development Manual* 'for the complete hierarchy', implying that the annex itself contained an incomplete listing. The *Development Manual*, however, does not contain a joint doctrine hierarchy chart or list. Instead, it only describes the types of joint doctrine publications within the hierarchy. Notably, one of these is JDN and another is joint discussion papers, which seem to fill a similar role to JDN.<sup>60</sup> Information on the full extent of the Canadian Forces joint doctrine

hierarchy or the currency of individual joint doctrine publications was not available for this study, and the answer to this question—‘yes’—is therefore based on partial and dated information in the case of the Canadian Forces.

## Q8: Does the armed force have an organisation explicitly tasked with developing and maintaining joint doctrine?

The answer to this question is ‘yes’ for all four armed forces studied. The organisation within each that is tasked with developing and maintaining joint doctrine is listed below.

- **United States.** In addition to maintaining scores of joint doctrine publications, the US military has also developed a comprehensive joint doctrine development process that is administered by the Joint Doctrine section of the J7 (Joint Force Development) branch of the Joint Staff.<sup>61</sup>
- **United Kingdom.** The Doctrine Team within the Development Concepts and Doctrine Centre is responsible for developing UK Joint Doctrine Publications and for achieving ‘maximum coherence and interoperability’ with NATO doctrine.<sup>62</sup>
- **Australia.** The ADF Joint Doctrine Centre—recently re-named the Joint Doctrine Directorate—is responsible for ‘coordinating the development and production of ADF Joint Operational doctrine’.<sup>63</sup>
- **Canada.** The organisation managing the Canadian Forces joint doctrine development process has changed over time, with only fragmented information publically available regarding these changes. From what information is available, it appears that the Canadian Forces Warfare Centre is currently responsible for joint doctrine development in Canada.<sup>64</sup> This organisation was stood up in either 2010 or 2011. Its predecessor, the Canadian Forces Experimentation Centre, is still listed as the responsible organisation in the (presumably out-of-date) *Joint Doctrine Development Manual*.<sup>65</sup> Although relatively recent data (dated March 2015) confirmed the ongoing existence of the Canadian Forces Warfare Centre at least until that time, data explicitly linking this organisation to Canadian Forces joint doctrine development was noticeably dated no more recently than 2011.<sup>66</sup> As a result, the answer to this question in the Canadian case—‘yes’—is based on partial and dated information that could not be verified.

In the case of the Canadian Forces, the answers to both Question 7 and Question 8 are based on partial (and for Question 8 arguably inconclusive) data. Accordingly, two possibilities must be acknowledged. First, it is possible that Canadian Forces production of joint doctrine ceased sometime around late 2011, which is the most recent point from which conclusive data could be obtained. Second, it is equally as possible that the Canadian Forces have simply stopped publishing information about their joint doctrine development in publically available fora, as is the case with the ADF. Either way, it must be emphasised that because of the paucity in available data, this study’s conclusions regarding the doctrinal aspect of jointness in the Canadian Forces are tentative.

## Summary and comparisons

Despite the limited availability of data to answer the eight questions proposed in this chapter, the utility of the theoretical model of joint military activities advanced in Chapter Three (the four aspects of joint) is nevertheless evident. Specifically, the answers to the eight questions posed here show how each of the four militaries studied has taken a different approach to achieving jointness. These answers also highlight the current extent of joint reforms implemented within each, something that stands in stark contrast to their historical lack of jointness that is evident from the historical discussion in Chapter Two. Finally, the above answers also enable the identification of opportunities where each of the four armed forces may make further joint reforms.

The answers to all eight questions are represented diagrammatically in Figure 4.3, which shows the extent of jointness in each military on the joint spectrum established in Chapter Three. This figure makes it easier to compare the relative extent of jointness in each of the armed forces examined. Where the four armed forces' vertical lines are shown touching each other over horizontal boxes representing the operational and doctrinal aspects of jointness, where the UK and Australia lines touch as they pass over the organisational and educational aspect boxes, and where the US and Canada lines touch as they cross the educational aspect box, this depicts an equal state of jointness in these armed forces; the lines are shown next to each other rather than atop each other to make the figure easier to read.

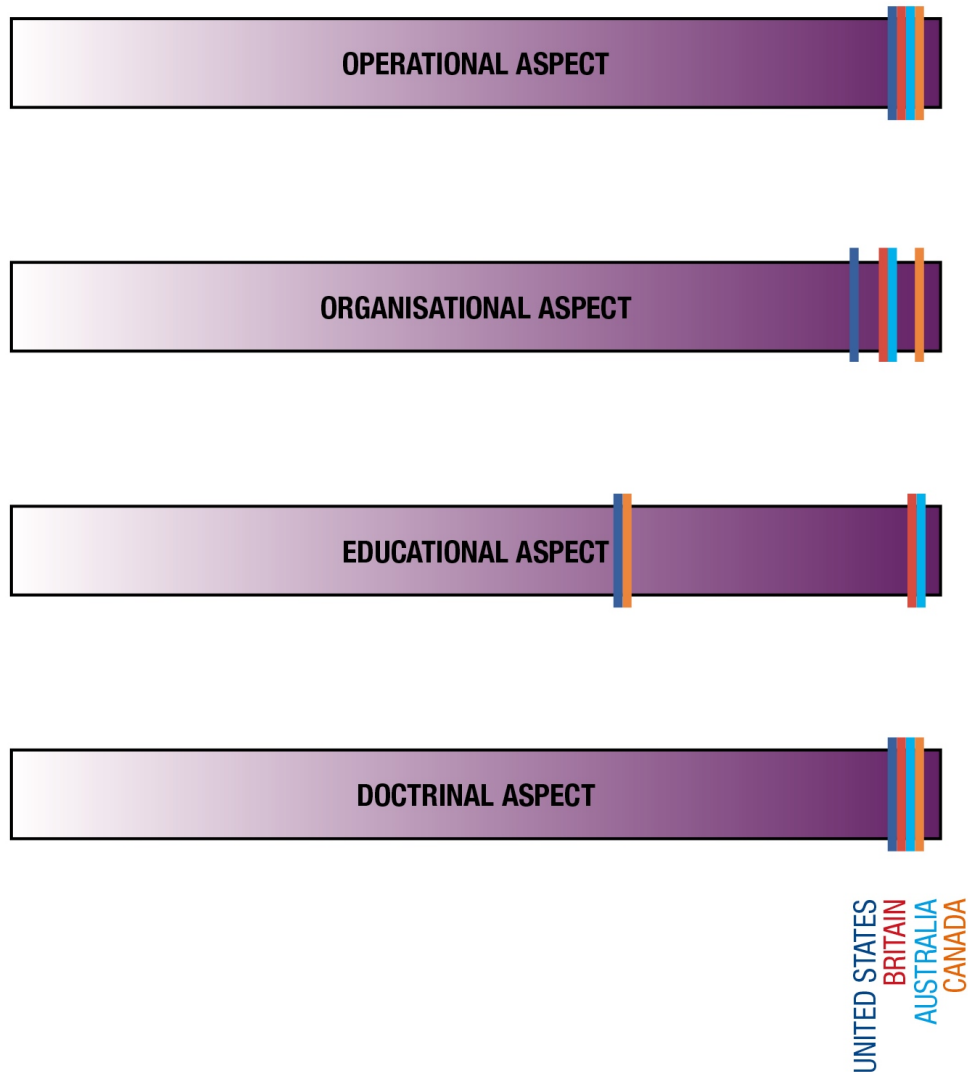
It should be emphasised that Figure 4.3 compares jointness in the four armed forces studied in relative rather than absolute terms, based on the qualitative assessment elaborated in this chapter. Although in most places the lines representing each military are close to the joint (right) side of the figure, this is a snapshot of the four armed forces at the point in time corresponding to contemporary rather than historical data. A more detailed historical comparison, which is beyond the scope of this study, may be able to yield more comprehensive results regarding changes over time within each armed force.

From the available data several comparisons can be made between the four armed forces. The first is that, unsurprisingly in light of the above findings, jointness has been much more difficult to implement in the US armed forces than in the other three studied and the US armed forces remains the least joint of the four. This is likely due to two primary contributing factors, the first being greater budgetary pressures on the UK, Australian and Canadian armed forces since the early 1990s, which has resulted in a greater need for them to take advantage of economies of scale. This is not to say that the US military has not faced its own budgetary challenges; it has. However, these have not been to the same extent as those faced by its three smaller allies, which have tended to seek joint solutions more frequently in response to tightening budgets.<sup>67</sup>

The second contributing factor is the relatively very large size of the US armed forces, which results in each US service requiring a greater amount of organic support. The US simply could not manage its extensive global military commitments if it had a single joint operational headquarters arrangement, as do the UK and Australia. It is also unlikely that a single joint PME institution such as that in the UK or Australia would be able to cope with the sheer number of US personnel at the O4 level and above required attend such an institution each year. The size and structure of each of the US services is such that each individual service has had to achieve

*within itself* a level of coordination across a range of different force elements that smaller militaries such as Australia and Canada have achieved across all three of their services. For example, the US Navy alone has enough planes that it effectively possesses an air force that is larger than the air forces of either of these smaller allies.<sup>68</sup> Given the definition of ‘joint’ used in this paper, this enhanced requirement for coordination within each US service has not been factored into this analysis.

**Figure 4.3: Comparative extent of jointness in four armed forces**



Regarding the results for each armed force for each of the four aspects of jointness, it is unsurprising that all four armed forces are considered equally as joint in the operational and doctrinal aspects.

The operational aspect has the longest lineage and the four armed forces studied have focused much attention on achieving joint operational cooperation. All four armed forces have developed joint operational command arrangements and have established permanent joint operational organisations, headquarters in particular, to command force elements from all services that are force assigned to conduct various operations. The key differences in structure between the armed forces studied are due to scale, with the US having nine operational headquarters where Canada has three and the UK and Australia have one each. Given that Canada’s armed forces

are smaller than the UK's and only slightly larger than Australia's, the existence of three operational headquarters in Canada seems anomalous. The comparison undertaken herein indicates that it may be possible for Canada to achieve additional efficiencies by rolling the functions of its three extant headquarters into a single organisation and further investigation of this option is warranted.

All four armed forces are rated as very joint in the doctrinal aspect because all four have established joint doctrine hierarchies and organisations to manage them. Two observations are pertinent here. First is the currency of the Canadian Forces joint doctrine hierarchy. Although it is possible that the dated data available for this study is due to the Canadian Forces moving its doctrine production out of the public realm, it is also possible that Canadian Forces joint doctrine production ceased around 2011. If it could be determined that the latter possibility is what has actually happened, then the vertical Canadian Forces line in Figure 4.3 would need to be moved to near the left hand side of the horizontal doctrinal aspect box. This would constitute a significant regression away from jointness in the Canadian Forces.

The second observation regarding joint doctrine is that each of the countries studied have made different numbers of doctrine publications available publically. The US armed forces is the only one of the four studied to have published a verifiably complete list of all of its joint doctrine publications. Were comprehensive lists available for the other armed forces studied, analysis could be expanded to cover the extent of the series and the currency of each publication within it. A more detailed analysis enabled by this additional data may result in changes to the position of the vertical country lines in Figure 4.3 for all armed forces except the US, since the broad scope and generally good currency of US publications can already be determined.

The organisational and educational aspects are where deviations can be observed between each of the armed forces studied. The slight deviation in positioning of the vertical lines for each armed force over the organisational aspect box in Figure 4.3 is based primarily on the relative extent of duplication between the services, with the US armed forces having the most duplication and therefore the least organisational jointness, and the Canadian Forces the least duplication and therefore the most organisational jointness, of the armed forces studied. The UK and Australian armed forces both sit in between these extremes.

The increased level of duplication in the US armed forces is presumably one result of the difference in scale discussed above. The global scope of its responsibilities means that the US armed forces require significantly greater resources. Yet the reasons for duplication in key areas, the maintenance of significant fleets of aircraft (fixed wing, rotary wing and UAV) by each service in particular, are not due to this scope of responsibilities. Rather, it is for a mix of historical and cultural reasons.

The cultural aspects are explored in detail in Carl Builder's excellent treatise *The Masks of War*. Here, Builder explores the culture of each US service, concluding that strong institutional interests, including control over the means of waging war, have driven each service to attempt to maintain control over the range of assets it deems it needs to optimise its chances for success at the types of operations it wants to conduct.<sup>69</sup> Control of air power has caused considerable inter-service competition, since air power is both a relatively recent addition to the means of waging war and a factor that has significant influence in both the maritime and land domains (see Chapter Two). In the US, the size and scope of each service seems to have intensified this completion, the result being increased duplication of aircraft between

services relative to the militaries of its allies. A similar situation exists regarding control of landing craft and amphibious vessels.

This is not to say that the US has been the only military where inter-service feuding over the control of air power has occurred. In Australia, such rivalry and accompanying institutional lobbying of government led to the transfer of ownership of land-based rotary wing assets from the Air Force to the Army in 1986.<sup>70</sup> Canada took the opposite approach and as the unification of the Canadian Forces was gradually eroded following the election of the Mulroney Government in 1984, ownership of all aircraft (fixed and rotary wing, land and sea-based) remained with Air Command. It is currently allocated to this organisation's successor, the re-established Royal Canadian Air Force.<sup>71</sup> Despite this national difference in service ownership of land-based rotary wing aircraft, both Australia and Canada have reduced their levels of duplication through the clear delineation of control of the assets in question by one service or another. The small size of their air forces and their small number of aircraft seems to have enabled reduced duplication between the services in these countries, as well as enabling a more 'black and white' resolution of command and control and duplication issues, precisely what the larger size of the US armed forces seems to have curtailed in their own case.

Indeed, control of rotary wing assets appears to be a key area of difference in terms of joint organisational arrangements between the four armed forces studied. The UK's Joint Helicopter Command is unique, since it eliminates support and service-support duplication while concurrently allowing the services to maintain ownership of their own rotary wing assets. Given that the Royal Australian Navy continues to control maritime-based rotary-wing aviation in the ADF, while the army controls land-based rotary wing aviation, the creation of an equivalent organisation to the UK's Joint Helicopter Command is an idea that the ADF should subject to cost-benefit analysis, particularly as ADF rotary wing assets from both services are likely to be employed in the littoral environment with increasing frequency.<sup>72</sup>

The Canadian Joint Operational Support Group has also contributed to the positioning of the Canadian Forces vertical line the furthest to the right over the horizontal organisational aspect box in Figure 4.3. This is because this organisation seems to have eliminated some duplication of service support force elements at the tactical level in the Canadian Forces, as well as at the operational and strategic levels.

In a similar way that the size of the US armed forces has resulted in the US requiring more operational level command organisations than its three smaller allies, the size of the US armed forces would likely prohibit their creation of a single similar organisation to the Canadian Joint Operational Support Group. The scope of such an organisation in the US would become too broad for it to more effectively manage logistics support than current US arrangements. Several smaller equivalent organisations, perhaps aligned to each combatant command, may be feasible in the US case. However, given the US tendency to use the component command method within its combatant commands, these possible new joint organisations may not be any more effective than current US single service tactical service support arrangements. Hence, any attempt to replicate the Canadian Joint Operational Support Group in the US armed forces is likely to be problematic. The smaller militaries of the UK and Australia, on the other hand, may gain greater benefits from such a joint service support structure as the Canadian Joint Operational Support



Group, and cost-benefit analyses should be undertaken for each of these countries to map the precise nature of the possible benefits such a structure may yield.

Regarding the educational aspect of jointness, the vertical lines representing the US and Canada have been plotted two-thirds of the way from the left side of the horizontal educational aspect box. This reflects the findings regarding joint and single service PME institutions that are shown in Table 4.3. It is pertinent to note that incomplete data about the role of the Canadian Army Command and Staff College in officer career progression may have skewed this result in the Canadian case. The incorporation of further data into the study may well have resulted in the vertical line representing Canada being shifted to the right next to the UK and Australia lines. It is also pertinent to again note that the US armed forces are understandably different in this area due to their large size. Although the US armed forces are not as joint as the UK or Australia, regarding joint PME requirements they may not need to be.

## Notes

<sup>1</sup> 'O4' is a joint military term referring to equivalent officer ranks in different services. Typically, O4 ranks are Lieutenant Commander (in navies), Major (in armies) and either Major or Squadron Leader (in air forces).

<sup>2</sup> Source for Figure 4.1: Andrew Feickert, *The Unified Command Plan and Combatant Commands: Background and Issues for Congress*, Congressional Research Service Report No. R42077, 3 January 2013 (online, <https://www.fas.org/sgp/crs/natsec/R42077.pdf>, accessed 17 August 2015), p. 65. This figure is also available at: US Department of Defense (USDOD), *Unified Command Plan*, 27 April 2011 (online: [http://www.defense.gov/home/features/2009/0109\\_unifiedcommand/](http://www.defense.gov/home/features/2009/0109_unifiedcommand/), accessed 8 August 2014).

<sup>3</sup> USDOD, *Unified Command Plan*.

<sup>4</sup> UK Ministry of Defence (UKMOD), *The Permanent Joint Headquarters* (online, <https://www.gov.uk/government/groups/the-permanent-joint-headquarters>, accessed 15 August 2016); Australian Defence Force (ADF), Australian Defence Doctrine Publication (ADDP) 00.1—*Command and Control*, ed. 1 (Canberra: Australian Defence Publishing Service, 2009), chap. 4.

<sup>5</sup> Canadian National Defence and the Canadian Armed Forces, *Canadian Joint Operations Command*, 16 September 2014 (online, <http://www.forces.gc.ca/en/about-org-structure/canadian-joint-operations-command.page>, accessed 17 August 2015); Canadian National Defence and the Canadian Armed Forces, *Establishment of the Canadian Forces Intelligence Command*, 19 September 2013 (online, <http://www.forces.gc.ca/en/news/article.page?doc=establishment-of-the-canadian-forces-intelligence-command/hlrp4gs7>, accessed 29 August 2016).

<sup>6</sup> UKMOD, *The Permanent Joint Headquarters*.

<sup>7</sup> North Atlantic Treaty Organization (NATO), *NATO-Russia Glossary of Contemporary Political and Military Terms* (Brussels: NATO-Russia Joint Editorial Working Group, undated, promulgated online on 8 June 2001), p. 160. (Online, <http://www.nato.int/docu/glossary/eng/index.htm>, accessed 14 August 2015).

<sup>8</sup> NATO, *NATO-Russia Glossary*, p. 36.

<sup>9</sup> William F. Owen, "The Operational Level of War Does Not Exist", *The Journal of Military Operations*, Vol. 1, No. 1 (Summer 2012), p. 20.

<sup>10</sup> Gordon R. Peskett, 'Levels of War: A New Canadian Model to begin the 21st Century' in: Allan English, Daniel Gosselin, Howard Coombs & Laurence M. Hickey (Eds.), *The Operational Art: Canadian Perspectives: Context and Concepts* (Kingston: Canadian Defence Academy Press, 2005), esp. pp. 100-106.

<sup>11</sup> Data given in Table 4.2 is derived from a mix of military and civilian websites, which were accessed on 1 July 2015. URLs include: <http://www.centcom.mil/en/about-centcom-en/commanders-posture-statement-en> (for USCENTCOM operations in Iraq/Afghanistan); [http://www.defense.gov/News/Special-Reports/0814\\_Inherent-Resolve](http://www.defense.gov/News/Special-Reports/0814_Inherent-Resolve) (for US Operation Inherent Resolve); <http://www.africom.mil/what-we-do> (for USAFRICOM); <http://www.internationalpolicydigest.org/2014/10/10/djibouti-reliable-partner-terrorism/> (for US Middle East operations relating to Djibouti); <http://www.theguardian.com/technology/2011/mar/17/us-spy-operation-social-networks> (for US Operation Earnest Voice); <http://www.dodig.mil/audit/reports/fy09/09-091.pdf> (also for US Operation Earnest Voice); <http://www.mintpressnews.com/2015-time-new-us-operations-iraq-afghanistan/200501/> (for US operations in Iraq/Afghanistan); <http://www.aco.nato.int/kfor.aspx>; <http://www.nato.int/kosovo/kosovo.htm> (both for US aspects of NATO Operation Joint Guardian); <http://www.southcom.mil/newsroom/Pages/Operation-Martillo.aspx> (for US Operation Martillo); <http://www.jiatfs.southcom.mil/> (for US JITF-South and Operation Martillo); [http://www.defense.gov/Portals/1/features/2014/0514\\_](http://www.defense.gov/Portals/1/features/2014/0514_)

atlanticresolve/docs/Operation\_Atlantic\_Resolve\_Fact\_Sheet\_21\_AUG\_2015.pdf; [http://www.defense.gov/News/Special-Reports/0514\\_Atlantic-Resolve](http://www.defense.gov/News/Special-Reports/0514_Atlantic-Resolve) (both for US Operation Atlantic Resolve); <http://www.mc.nato.int/ops/Pages/OOS.aspx> (for US aspects of NATO Operation Ocean Shield); <http://www.rs.nato.int/> (for US Operation Resolute Support); <https://www.whitehouse.gov/the-press-office/2014/08/06/fact-sheet-us-support-peacekeeping-africa> (for information about US support to UN missions in Africa); <http://www.un.org/en/peacekeeping/missions/monusco/facts.shtml> (for UN mission MONUSCO); <http://mfo.org/> (for information about the Multinational Force of Observers in the Sinai); <http://www.un.org/en/peacekeeping/missions/unmil/facts.shtml> (for UN mission UNMIL); <http://www.un.org/en/peacekeeping/missions/unmiss/facts.shtml> (for UN mission UNMISS); <http://combinedmaritimeforces.com/about/> (for NATO CTF-150, CTF-151 and CTF-152); : <http://www.nato.int/kosovo/kosovo.htm> (for UK aspects of NATO Operation Joint Guardian); <http://www.mc.nato.int/ops/Pages/OOS.aspx> (for UK aspects of NATO Operation Ocean Shield); <http://eunavfor.eu/> (for UK Operation Atlanta); <http://www.dailymail.co.uk/news/article-2808240/Britain-s-war-Afghanistan-comes-end-13-years-flag-lowered-Camp-Bastion.html>; [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/406822/20150223\\_FOI\\_Herrick\\_Toral\\_Gov.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/406822/20150223_FOI_Herrick_Toral_Gov.pdf) (both for UK Operation Toral); <http://www.msn.com/en-gb/news/uknews/mod-about-330-isis-members-killed-in-raf-airstrikes/ar-AAep9h6?ocid=spartanntp>; <http://www.bbc.com/news/uk-29383943> (both for UK Operation Shader); <http://www.un.org/en/peacekeeping/missions/monusco/facts.shtml> (for UN mission MONUSCO); <http://www.aco.nato.int/kfor/about-us/troop-numbers-contributions.aspx> (for NATO KFOR); <http://www.army.mod.uk/operations-deployments/22728.aspx> (for UN mission UNFICYP); <http://www.royalnavy.mod.uk/news-and-latest-activity/operations/south-atlantic/gritrock> (for UK Operation Gritrock); <http://www.royalnavy.mod.uk/news-and-latest-activity/operations/red-sea-and-persian-gulf/kipion-mcmv> (for UK Operation Kipion); <http://www.defence.gov.au/operations/> (for a list of all ADF operations by name and location); <http://www.forces.gc.ca/en/operations/current-list.page#tab-1424977816603-1>; <http://www.forces.gc.ca/en/operations-how/international-operations.page> (both for lists of all Canadian Forces operations by name and location).

<sup>12</sup> UKMOD, *The Permanent Joint Headquarters*; see also: UKMOD, Joint Doctrine Publication (JDP) 3.00—*Campaign Execution* (3<sup>rd</sup> ed., October 2009).

<sup>13</sup> USDOD, *Unified Command Plan*; USDOD, Joint Publication 1—*Doctrine for the Armed Forces of the United States*, 25 March 2013, pp. II.9-II.11.

<sup>14</sup> Source for Figure 4.2: ADF, ADDP 00.1—*Command and Control*, ed. 2, unpublished draft dated May 2015, chap. 6. Notes: (1) The component commanders shown are indicative only and the exact component command structure varies between operations, depending on the precise requirements of each. (2) In the US case, the chain of command may be straight from a Unified or Specified Combatant Commander to a component commander, without a joint task force commander between them.

<sup>15</sup> Stephen A. Carney, *Allied Participation in Operation Iraqi Freedom* (Washington DC: US Army Centre for Military History, 2011); Donald P. Wright & Timothy R. Reese, *On Point II: Transition to a New Campaign* (Fort Leavenworth, KS: Combat Studies Institute Press, 2008), chap. 4; Australian Department of Defence (ADOD), *The War in Iraq: ADF Operations in the Middle East in 2003*, undated (online, <http://www.defence.gov.au/publications/lessons.pdf>, accessed 18 August 2016); UKMOD, *Command and Control: Comparative Case Studies for Joint Doctrine Publication 3-40*, undated (online, [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/43478/jdp340supplementarycommandandcontrolcasestudies.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/43478/jdp340supplementarycommandandcontrolcasestudies.pdf), accessed 18 August 2016).

<sup>16</sup> NATO, *Operation UNIFIED PROTECTOR Command and Control*, undated but circa 2011 (online, [http://www.nato.int/nato\\_static/assets/pdf/pdf\\_2011\\_03/20110325\\_110325-unified-protector-command-control.pdf](http://www.nato.int/nato_static/assets/pdf/pdf_2011_03/20110325_110325-unified-protector-command-control.pdf), accessed 18 August 2016).

<sup>17</sup> USDOD, Joint Publication 1—*Doctrine for the Armed Forces of the United States*, 25 March 2013, Chap. 2; US Joint Chiefs of Staff, *About the Joint Chiefs of Staff*, undated (online, <http://www.jcs.mil/About/>, accessed 13 February 2017). For a concise summary, see: United States Institute of Peace, *Guide for Participants in Peace, Stability and Relief Operations*, undated (online, <http://www.usip.org/node/5707>, accessed 13 February 2017).

<sup>18</sup> US Joint Chiefs of Staff, *About the Joint Chiefs of Staff*.

<sup>19</sup> US Transportation Command, *About US Transportation Command*, undated (online, <http://www.ustranscom.mil/cmd/aboutustc.cfm>, accessed 13 February 2017).

<sup>20</sup> US Defense Logistics Agency, *DLA at a Glance*, undated (online, <http://www.dla.mil/AtaGlance.aspx>, accessed 13 February 2017).

<sup>21</sup> USDOD, Joint Publication 4-0—*Joint Logistics*, 16 October 2013, Annex C, details several strategic and operational level joint logistics organisations within the USDOD.

<sup>22</sup> USDOD, *Functions of the Department of Defense and Its Major Components*, Directive No. 5100.01, 21 December 2010, see esp. Enclosure 7, quote p. 36.

<sup>23</sup> UK Armed Forces, *The Management of Defence*, undated (online, <http://www.armedforces.co.uk/mod/listings/I0004.html>, accessed 14 February 2017).

<sup>24</sup> International Institute for Strategic Studies (IISS), *The Military Balance*, Vol. 114 (2014), chap. 4.

<sup>25</sup> UKMOD, *Defence Equipment and Support: About Us*, updated 27 January 2017 (online, <https://www.gov.uk/government/organisations/defence-equipment-and-support/about>, accessed 14 February 2017).

<sup>26</sup> UKMOD, *Defence Equipment and Support: Home*, updated 16 January 2017 (online, <https://www.gov.uk/government/organisations/defence-equipment-and-support>, accessed 14 February 2017); Dave Harvey, 'Straight Talking from the Top, at MoD Abbey Wood', *BBC News*, 12 May 2011 (online, [http://www.bbc.co.uk/blogs/daveharvey/2011/05/straight\\_talking\\_from\\_the\\_top.html](http://www.bbc.co.uk/blogs/daveharvey/2011/05/straight_talking_from_the_top.html), accessed 14 February 2017).

<sup>27</sup> ADOD, *Vice Chief of the Defence Force*, undated (online, <http://www.defence.gov.au/VCDF/>, accessed 23 October 2017).

<sup>28</sup> ADOD, *Joint Capabilities Group*, undated (online, <http://www.defence.gov.au/JCG/>, accessed 23 October 2017).

<sup>29</sup> ADOD, *Force Design Division*, undated (online, <http://www.defence.gov.au/VCDF/FD/>, accessed 23 October 2017).

<sup>30</sup> ADOD, *Joint Capability Management and Integration Division*, undated (online, <http://www.defence.gov.au/VCDF/JCMI/>, accessed 23 October 2017).

<sup>31</sup> ADF, ADDP 00.1—*Command and Control*, Chapter 4.

<sup>32</sup> Canadian National Defence and the Canadian Armed Forces, *Chief of the Defence Staff: List of Armed Forces Council*, undated (online, <http://www.forces.gc.ca/en/about-org-structure/chief-of-defence-staff.page>, accessed 14 February 2017).

<sup>33</sup> Canadian National Defence and the Canadian Armed Forces, *Strategic Joint Staff*, 21 July 2016 (online, <http://www.forces.gc.ca/en/about-org-structure/strategic-joint-staff.page>, accessed 29 July 2016).

<sup>34</sup> Canadian National Defence and the Canadian Armed Forces, *Chief of Military Personnel*, 6 June 2016 (online, <http://www.forces.gc.ca/en/about-org-structure/chief-military-personnel.page>, accessed 29 July 2016).

<sup>35</sup> Canadian National Defence and the Canadian Armed Forces, *Canadian Armed Forces Branches*, 27 January 2016 (online, <http://www.forces.gc.ca/en/caf-community-branches/index.page>, accessed 29 July 2016).

- <sup>36</sup> Definitions from, respectively: ADF, ADDP 1.0—*Personnel* (Canberra: Australian Defence Publishing Service, 2015), glossary p. 3; NATO, *NATO-Russia Glossary*, p. 47.
- <sup>37</sup> IISS, *The Military Balance*, Vol. 117 (2017), pp. 45-57.
- <sup>38</sup> IISS, *The Military Balance*, Vol. 117 (2017), pp. 170-175 & 270-273.
- <sup>39</sup> IISS, *The Military Balance*, Vol. 117 (2017), pp. 45-57, 170-175 & 270-273.
- <sup>40</sup> USDOD, *Defense Health Agency*, undated (online, <http://www.health.mil/dha>, accessed 1 March 2017); UKMOD, *Defence Medical Services*, undated (online, <https://www.gov.uk/government/groups/defence-medical-services>, accessed 1 March 2017); ADOD, *Defence Health: About Joint Health Command*, undated (online, <http://www.defence.gov.au/health/>, accessed 1 March 2017); Canadian National Defence and the Canadian Armed Forces, *The Canadian Forces Health Services (CFHS)*, undated but probably circa 2014 (online, <https://www.royalcdnmedicalsvc.ca/wp-content/uploads/2014/01/CFHS-Overview.pdf>, accessed 1 March 2017).
- <sup>41</sup> British Army, *Joint Helicopter Command*, 2017 (online, <http://www.army.mod.uk/structure/32411.aspx>, accessed 20 February 2017).
- <sup>42</sup> Canadian National Defence and the Canadian Armed Forces, *Operational Support in Canada*, 22 June 2016 (online, <http://www.forces.gc.ca/en/operations-support/cfjosg.page>, accessed 20 February 2017).
- <sup>43</sup> IISS, *The Military Balance*, Vol. 117 (2017), pp. 42-44.
- <sup>44</sup> IISS, *The Military Balance*, Vol. 117 (2017), pp. 45-57.
- <sup>45</sup> IISS, *The Military Balance*, Vol. 117 (2017), pp. 170-175.
- <sup>46</sup> IISS, *The Military Balance*, Vol. 117 (2017), pp. 270-273.
- <sup>47</sup> IISS, *The Military Balance*, Vol. 117 (2017), pp. 42-44.
- <sup>48</sup> UKMOD, JDP 3.00, 3rd ed.; ADOD, *The Evolution of the Australian Defence College*, July 2013 (online, [http://www.defence.gov.au/adc/docs/hqADC2013/ADC\\_Evolution.pdf](http://www.defence.gov.au/adc/docs/hqADC2013/ADC_Evolution.pdf), accessed 6 August 2014).
- <sup>49</sup> National Defence and the Canadian Armed Forces, *Canadian Army Command and Staff College (CACSC)* (online, <http://www.forces.gc.ca/en/training-establishments/command-staffcollege-index.page>, accessed 21 February 2017).
- <sup>50</sup> Kirsty N. Kamarck, *Goldwater-Nichols and the Evolution of Officer Joint Professional Military Education (JPME)*, Congressional Research Service Report for Congress No. R44340, 13 January 2016.
- <sup>51</sup> Kamarck, *Goldwater-Nichols and the Evolution of Officer Joint Professional Military Education*, p. 14.
- <sup>52</sup> One statistic that could be found was for the US Army War College Military Education Level I programs, which in 2015 were attended by 217 US Army officers and by 62 officers from the other US services. Put another way, approximately 22 percent of the US students attending these courses were from the other US services. USDOD, *US Army War College: Military Education Level I Programs*, undated (online, [http://www.carlisle.army.mil/programs/mel\\_1.htm](http://www.carlisle.army.mil/programs/mel_1.htm), accessed 23 February 2017).
- <sup>53</sup> Sources for Table 4.3: Kamarck, *Goldwater-Nichols and the Evolution of Officer Joint Professional Military Education*; USDOD, *US Army War College: Military Education Level I Programs*; National Defence and the Canadian Armed Forces, *Canadian Army Command and Staff College (CACSC)*;

USDOD, *National Defense University: Colleges and Centers*, undated (online, <http://www.ndu.edu/Academics/Colleges-Centers/>, accessed 21 February 2017); USDOD, *Joint Forces Staff College: Schools and Academic Programs*, undated (online, <http://jpsc.ndu.edu/Academics/>, accessed 23 February 2017); USDOD, *National Intelligence University: Accreditation*, undated (online, <http://ni-u.edu/wp/about-niu/accreditation/>, accessed 23 February 2017); USDOD, *Joint Special Operations University: Fact Book: Executive Summary*, 2016 (online, [https://www.socom.mil/JSOU/JSOUPublications/2016\\_FactBook\\_ExSum\\_web\\_122816.pdf](https://www.socom.mil/JSOU/JSOUPublications/2016_FactBook_ExSum_web_122816.pdf), accessed 24 February 2017); USDOD, *US Naval War College: Joint Professional Military Education*, undated (online, <https://www.usnwc.edu/Academics/Joint-Professional-Military-Edu.aspx>, accessed 23 February 2017); USDOD, *Marine Corps University: Accreditation*, undated (online, <https://www.usmcu.edu/about-us/accreditation>, accessed 23 February 2017); USDOD, *US Army combined Arms Center: Command and General Staff College*, 2 December 2015 (online, <http://usacac.army.mil/organizations/cace/cgsc>, accessed 23 February 2017); USDOD, *US Air University: Accreditation and Degree-Granting Authority*, 15 June 2016 (online, <http://www.airuniversity.af.mil/Academic-Affairs/Display/Article/800174/>, accessed 24 February 2017); UKMOD, *Defence Academy of the United Kingdom: About*, 2017 (online, <http://www.da.mod.uk/About-Us>, accessed 27 February 2017); UKMOD, *Defence Academy of the United Kingdom: Joint Services Command and Staff College*, 2017 (online, <http://www.da.mod.uk/Colleges-Business-Units/JSCSC>, accessed 27 February 2017); UKMOD, *Defence Academy of the United Kingdom: Royal College of Defence Studies*, 2017 (online, <http://www.da.mod.uk/Colleges-Business-Units/RCDS>, accessed 27 February 2017); ADOD, *Australian Defence College*, undated (online, <http://www.defence.gov.au/adcl/>, accessed 27 February 2017); ADOD, *Australian Defence College: Australian Command and Staff College*, undated (online, <http://www.defence.gov.au/ADC/ACSC/>, accessed 27 February 2017); ADOD, *Australian Defence College: Centre for Defence and Strategic Studies*, undated (online, <http://www.defence.gov.au/ADC/CDSS/>, accessed 27 February 2017); National Defence and the Canadian Armed Forces, *Military Personnel Generation (MILPERSGEN)*, 6 September 2016 (online, <http://www.forces.gc.ca/en/training-prof-dev/military-personnel-generation.page>, accessed 27 February 2017); National Defence and the Canadian Armed Forces, *Canadian Forces College*, 26 February 2017 (online, <http://www.cfc.forces.gc.ca/221-eng.html>, accessed 27 February 2017).

<sup>54</sup> USDOD, *Joint Doctrine Hierarchy*, 2 December 2016 (online, <http://www.dtic.mil/doctrine/doctrine/status.pdf>, accessed 27 February 2017).

<sup>55</sup> USDOD, *Joint Electronic Library: Joint Doctrine and Joint Publications*, 21 February 2017 (online, [http://www.dtic.mil/doctrine/new\\_pubs/jointpub.htm](http://www.dtic.mil/doctrine/new_pubs/jointpub.htm), accessed 27 February 2017).

<sup>56</sup> UKMOD, *Collection: Joint Doctrine Publication (JDP)*, 8 March 2016 (online, <https://www.gov.uk/government/collections/joint-doctrine-publication-jdp>, accessed 27 February 2017).

<sup>57</sup> UKMOD, *Collection: Allied Joint Publication (AJP)*, 30 March 2016 (online, <https://www.gov.uk/government/collections/allied-joint-publication-ajp>, accessed 27 February 2017); UKMOD, *Collection: Joint Doctrine Note (JDN)*, 21 September 2016 (online, <https://www.gov.uk/government/collections/joint-doctrine-note-jdn>, accessed 27 February 2017).

<sup>58</sup> Gordon Milward, *ADFWC Joint Doctrine: Introduction*, PowerPoint presentation prepared for the Australian Defence Force Warfare Centre (ADFWC), undated but first delivered during 2007, copy obtained by author 27 August 2007. The prior research project by this author was published as: Aaron P. Jackson, *Doctrine, Strategy and Military Culture: Military-Strategic Doctrine Development in Australia, Canada and New Zealand, 1987-2007* (Trenton: Canadian Forces Aerospace Warfare Centre, 2013). (Online: [http://publications.gc.ca/collections/collection\\_2013/dn-nd/D2-320-2013-eng.pdf](http://publications.gc.ca/collections/collection_2013/dn-nd/D2-320-2013-eng.pdf), accessed 27 October 2017).

<sup>59</sup> Canadian Department of National Defence, Canadian Forces Joint Publication 01—*Canadian Military Doctrine* (Canadian Forces Joint Doctrine Branch, 2009), p. 1A.1.

<sup>60</sup> Canadian Department of National Defence, Canadian Forces Joint Publication A1—*Joint Doctrine Development Manual* (Canadian Forces Experimentation Centre, 2010), p. 1.7.

<sup>61</sup> Chairman of the Joint Chiefs of Staff, *Joint Doctrine Development System*, Instruction No. CJCSI 5120.02B, dated 4 December 2009 (online, [http://www.dtic.mil/doctrine/new\\_pubs/cjcsi5120\\_02b.pdf](http://www.dtic.mil/doctrine/new_pubs/cjcsi5120_02b.pdf), accessed 6 August 2014); Joint Chiefs of Staff, *J7 Joint Force Development*, undated (online, <http://www.jcs.mil/Directorates/J7%7CJointForceDevelopment.aspx>, accessed 27 February 2017).

<sup>62</sup> UKMOD, *Development Concepts and Doctrine Centre*, undated (online, <https://www.gov.uk/government/groups/development-concepts-and-doctrine-centre>, accessed 27 February 2017).

<sup>63</sup> ADOD, *Joint Doctrine Centre*, undated (online, <http://www.defence.gov.au/ADFWC/doctrine.asp>, accessed 27 February 2017); supplemented by Dr David Connery, Director Joint Doctrine, personal correspondence with author, 9 June 2017.

<sup>64</sup> Vanguard Staff, 'Concepts Sandbox: An Innovation Centre for Joint Capability Development', *Vanguard*, 1 July 2011 (online, <http://www.vanguardcanada.com/2011/07/01/concepts-sandbox-innovation-centre-joint-capability-development/>, accessed 27 February 2017).

<sup>65</sup> Canadian Forces Joint Publication A1—*Joint Doctrine Development Manual*, p. 1.5.

<sup>66</sup> The most recent publically available reference to the Canadian Forces Warfare Centre that could be found during research for this study was: Alycia Coulter, 'Canadian Forces Warfare Centre conducts Cage IIIB experiment', *National Defence and the Canadian Armed Forces*, 23 March 2015 (online, <http://www.forces.gc.ca/en/news/article.page?doc=canadian-forces-warfare-centre-conducts-cage-iiib-experiment/i7kv1qzj>, accessed 27 February 2017).

<sup>67</sup> For a comparative exploration of defence budgeting, see: Mark Thomson, 'Trends in US defence spending: implications for Australia', *Policy Analysis 56* (Canberra: Australian Strategic Policy Institute, 2010). (Online, [https://www.aspi.org.au/publications/trends-in-us-defence-spending-implications-for-australia-by-mark-thomson/Policy\\_Analysis56\\_US\\_defence\\_spending.pdf](https://www.aspi.org.au/publications/trends-in-us-defence-spending-implications-for-australia-by-mark-thomson/Policy_Analysis56_US_defence_spending.pdf), accessed 2 May 2017).

<sup>68</sup> IISS, *The Military Balance*, Vol. 114 (2014), chap. 3 & 6.

<sup>69</sup> Carl H. Builder, *The Masks of War: American Military Styles in Strategy and Analysis* (Baltimore, MD: John Hopkins University Press, 1989). Note that in contrast to this study, Builder considers the US Marine Corps as part of the US Navy, not as a separate service. His findings are nevertheless applicable to explain the phenomena observed herein.

<sup>70</sup> Martin Sharp, *Command and Control of Battlefield Helicopters: The Search for a Joint Approach* (Canberra: RAAF Air Power Studies Centre, 1998), pp. 85-91.

<sup>71</sup> For historic command arrangements, see: Allen English, *Command and Control of Canadian Aerospace Forces: Conceptual Foundations* (Trenton: Canadian Forces Aerospace Warfare Centre, 2008), pp. 43-84. For current command arrangements, see: IISS, *The Military Balance*, Vol. 117 (2017), pp. 42-44.

<sup>72</sup> This increase is due to the ongoing development of Australia's amphibious capabilities, something which is currently an Australian strategic priority. Australian Department of Defence, *2016 Defence White Paper* (Canberra: Commonwealth of Australia, 2016), p. 99.





## CONCLUSION

---

As operations during the last century have shown, Western militaries are more effective when their services achieve high levels of joint cooperation. The development of a theory of joint military activities is therefore important because such a theory is likely to provide a mechanism for these armed forces to reach a deeper understanding of the nature of jointness, why it is important and how to implement it. From this deeper understanding guidance may in turn be derived to enable the more effective conduct of future joint military activities. Yet despite ongoing and significant joint reforms within most Western militaries since the late 1980s, and the conduct of detailed historical studies of joint military operations, joint military activities theory has remained in an embryonic state. This is anomalous given the potential benefits to praxis that a sound theoretical understanding is likely to yield.

Based on a reconsideration in Chapter Two of the common historical narrative of joint military activities, which in the absence of theory has tended to provide guidance for previous joint reforms, this paper has taken a step towards closing the joint theoretical gap. It did so by proposing a theoretical model, the four aspects of joint, which can be employed as a method for comparatively evaluating the extent of jointness within armed forces. These aspects are operational, organisational, educational and doctrinal. As elaborated in Chapter Three, these aspects can be displayed as a spectrum ranging from non-joint to very joint, and this can be used to provide a qualitative and relative evaluation of the extent of jointness in different militaries. Subsequently, in Chapter Four, this model was applied to a study of four Western militaries—the US, Britain, Australia and Canada—to enable an evaluation to be made of the extent of jointness within each force.

Although each of these armed forces is fairly joint overall, the comparative examination conducted by applying the four aspects of joint has revealed several areas where each may be able to undertake additional joint reforms, based on the successful experiences of the others. These areas include the possible amalgamation of the three joint operational headquarters in Canada into a single organisation that is similar to that in the UK or Australia; the implementation of measures to decrease the duplication of rotary wing and unmanned aerial vehicles, and their supporting apparatus, between services within the US military; the creation of a joint helicopter command in Australia that is similar to that in the UK; and the establishment of a joint operational support group in Australia and the UK, modelled on the current Canadian organisation bearing that name. Although analysis herein has not been sufficiently detailed to recommend outright that each of these additional joint reforms be implemented, it has been sufficient to enable a recommendation to be made that each of these options be subjected to a rigorous cost-benefit analysis by the applicable armed forces.

Additionally, by comparatively examining these four armed forces this paper has highlighted that smaller armed forces are more likely to be able to implement joint reforms. It has also posited that there may be a threshold beyond which joint reforms become detrimental to performance. This threshold is both relative and circumstantial—it is likely to vary over time and between armed forces. However, it is nevertheless likely to be somewhere near the point at which *integration* of functions between the

services gives way to outright *unification* of the services, and joint reforms are also likely to have a higher chance of being detrimental if they are implemented too quickly. These observations are, however, based on a single case study—the unification of the Canadian Forces in 1968—and instead of yielding conclusive findings they instead highlight an area for further research.

Indeed, this paper has highlighted several areas where further research from a theoretical perspective could enhance understanding of the nature and significance of joint military activities. These areas include expanding the application of the four aspects of joint as a model for comparative evaluation of the extent of jointness in different armed forces. For example, the assessment of jointness in the US, UK, Australian and Canadian armed forces undertaken in Chapter Four was based on contemporary sources and therefore offers a snap shot of the extent of jointness today, not a contrast over time. The four aspects of joint could also be applied to evaluate the extent of jointness in these militaries over time, potentially yielding new insights into how these militaries became joint, or how joint reforms at different times were subsequently degraded or undone. Such historical research may also contribute to more definitively determining the threshold beyond which joint reforms become detrimental, as well as explaining how armed forces have reacted to such reforms and whether these reactions have subsequently reduced jointness or instead have gradually shifted the threshold.

An expansion of the data collection questions proposed in Chapter Four may reveal additional areas where different armed forces, including the four examined here, could learn from the joint reforms of others. This is particularly pertinent regarding the organisational aspect of jointness. Comparative evaluation in this area could potentially be expanded to include forward-looking elements such as strategic policy development, capability development, force design, and acquisitions programs, all areas that were not explored here due to a combination of space constraints and paucity in available data. With access to additional data, however, these constraints need not apply to future analysis, particularly if such research areas are examined historically rather than just contemporarily.

The four aspects of joint could also be applied to other armed forces beyond those examined herein. Providing that the unique historical and cultural factors applying to non-Western armed forces, which were explored in Chapter Two, are adequately taken into account, such analysis could yield valuable insights into why attempts to foster joint coordination in these other militaries have either succeeded or failed. They could also yield insights about where non-Western armed forces seeking to increase the extent of their own joint coordination may be able to better benefit from the experience not just of Western armed forces, but also of one another. Further research in this area may therefore be a useful tool to support the conduct of training, advise and assist missions.

In addition to further applying the four aspects of joint to enable subsequent research and analysis, there is also scope for the range of theories of joint military activities to be expanded. As highlighted in Chapter Three, joint military activities theory today is where maritime warfare theory was in the mid-nineteenth century. It is embryonic, and needs to be further developed before it reaches its full potential as an explanatory and guiding tool. Although this paper has developed the four aspects of joint as a theoretical model, it does not claim that this model is the definitive theory of joint military activities. Rather, it is hoped that this paper will serve to prompt the further development of joint military activities theory. It is also hoped that such further

developments will take into account the less tangible, yet vital, aspects of jointness addressed herein, such as the role of organisational culture and the need to go beyond operational conduct alone to form a truly comprehensive joint theory.

Despite the insights enabled by the application of the four aspects of joint in Chapter Four of this paper, the accompanying analysis has been necessarily cursory. This has been necessary because the evaluation of jointness in the four militaries examined was based on the limited data that is publically available. Further research is required before any of the conclusions reached herein can be considered comprehensive, hence the focus in this concluding chapter on exploring areas for further research. Yet, despite the limits of this study, no other study of jointness known to this author has gone as far towards conducting an analysis of jointness *from a theoretical perspective*. This perspective is one worthy of further development because of the benefits it is likely to yield to the successful practice of joint military activities in the future.



# BIBLIOGRAPHY

---

## Primary sources

### Australian Government sources

Australian Defence Force, Australian Defence Doctrine Publication 00.1—*Command and Control*, ed. 1 (Canberra: Australian Defence Publishing Service, 2009).

Australian Defence Force, Australian Defence Doctrine Publication 00.1—*Command and Control*, ed. 2, unpublished draft dated May 2015.

Australian Defence Force, Australian Defence Doctrine Publication 00.9—*Multiagency Coordination: Defence's Contribution to Australian Government Responses*, ed. 1 (Canberra: Australian Defence Publishing Service, 2013).

Australian Defence Force, Australian Defence Doctrine Publication 1.0—*Personnel* (Canberra: Australian Defence Publishing Service, 2015).

Australian Department of Defence, *2016 Defence White Paper* (Canberra: Commonwealth of Australia, 2016).

Australian Department of Defence, *Australian Defence College*, undated (online, <http://www.defence.gov.au/adcl/>, accessed 27 February 2017).

Australian Department of Defence, *Australian Defence College: Australian Command and Staff College*, undated (online, <http://www.defence.gov.au/ADC/ACSC/>, accessed 27 February 2017).

Australian Department of Defence, *Australian Defence College: Centre for Defence and Strategic Studies*, undated (online, <http://www.defence.gov.au/ADC/CDSS/>, accessed 27 February 2017).

Australian Department of Defence, *Defence Health: About Joint Health Command*, undated (online, <http://www.defence.gov.au/health/>, accessed 1 March 2017).

Australian Department of Defence, *Force Design Division*, undated (online, <http://www.defence.gov.au/VCDF/FDI/>, accessed 23 October 2017).

Australian Department of Defence, *Future Joint Operating Concept 2030*, 25 March 2011 (online, [http://www.defence.gov.au/vcdf/docs/FJOC\\_UNCLASS.pdf](http://www.defence.gov.au/vcdf/docs/FJOC_UNCLASS.pdf), accessed 15 August 2015).

Australian Department of Defence, *Joint Capabilities Group*, undated (online, <http://www.defence.gov.au/JCG/>, accessed 23 October 2017).

Australian Department of Defence, *Joint Capability Management and Integration Division*, undated (online, <http://www.defence.gov.au/VCDF/JCMI/>, accessed 23 October 2017).

Australian Department of Defence, *Joint Doctrine Centre*, undated (online, <http://www.defence.gov.au/ADFWC/doctrine.asp>, accessed 27 February 2017).

Australian Department of Defence, *The Evolution of the Australian Defence College*, July 2013 (online, [http://www.defence.gov.au/adcdocs/hqADC2013/ADC\\_Evolution.pdf](http://www.defence.gov.au/adcdocs/hqADC2013/ADC_Evolution.pdf), accessed 6 August 2014).

Australian Department of Defence, *The War in Iraq: ADF Operations in the Middle East in 2003*, undated (online, <http://www.defence.gov.au/publications/lessons.pdf>, accessed 18 August 2016).

Australian Department of Defence, *Vice Chief of the Defence Force*, undated (online, <http://www.defence.gov.au/VCDF/>, accessed 23 October 2017).

Milward, Gordon, *ADFWC Joint Doctrine: Introduction*, PowerPoint presentation prepared for the Australian Defence Force Warfare Centre (ADFWC), undated but first delivered during 2007, copy obtained by author 27 August 2007.

### **British Government sources**

British Army, *Joint Helicopter Command*, 2017 (online, <http://www.army.mod.uk/structure/32411.aspx>, accessed 20 February 2017).

Defence Academy of the United Kingdom, *Joint Services Command and Staff College: Background*, undated (online, <https://www.da.mod.uk/colleges/jscsc/About%20JSCSC>, accessed 25 December 2008).

UK Armed Forces, *The Management of Defence*, undated (online, <http://www.armedforces.co.uk/mod/listings/l0004.html>, accessed 14 February 2017).

UK Ministry of Defence, *Collection: Allied Joint Publication (AJP)*, 30 March 2016 (online, <https://www.gov.uk/government/collections/allied-joint-publication-ajp>, accessed 27 February 2017).

UK Ministry of Defence, *Collection: Joint Doctrine Note (JDN)*, 21 September 2016 (online, <https://www.gov.uk/government/collections/joint-doctrine-note-jdn>, accessed 27 February 2017).

UK Ministry of Defence, *Collection: Joint Doctrine Publication (JDP)*, 8 March 2016 (online, <https://www.gov.uk/government/collections/joint-doctrine-publication-jdp>, accessed 27 February 2017).

UK Ministry of Defence, *Command and Control: Comparative Case Studies for Joint Doctrine Publication 3-40*, undated (online, [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/43478/jdp340supplementarycommandandcontrolcasestudies.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/43478/jdp340supplementarycommandandcontrolcasestudies.pdf), accessed 18 August 2016).

UK Ministry of Defence, *Defence Academy of the United Kingdom: About*, 2017 (online, <http://www.da.mod.uk/About-Us>, accessed 27 February 2017).

UK Ministry of Defence, *Defence Academy of the United Kingdom: Joint Services Command and Staff College*, 2017 (online, <http://www.da.mod.uk/Colleges-Business-Units/JSCSC>, accessed 27 February 2017).

UK Ministry of Defence, *Defence Academy of the United Kingdom: Royal College of Defence Studies*, 2017 (online, <http://www.da.mod.uk/Colleges-Business-Units/RCDS>, accessed 27 February 2017).

UK Ministry of Defence, *Defence Equipment and Support: About Us*, updated 27 January 2017 (online, <https://www.gov.uk/government/organisations/defence-equipment-and-support/about>, accessed 14 February 2017).

UK Ministry of Defence, *Defence Equipment and Support: Home*, updated 16 January 2017 (online, <https://www.gov.uk/government/organisations/defence-equipment-and-support>, accessed 14 February 2017).

UK Ministry of Defence, *Defence Medical Services*, undated (online, <https://www.gov.uk/government/groups/defence-medical-services>, accessed 1 March 2017).

UK Ministry of Defence, *Development Concepts and Doctrine Centre* (online, <https://www.gov.uk/government/groups/development-concepts-and-doctrine-centre>, accessed 27 February 2017).

UK Ministry of Defence, Joint Doctrine Publication 3.00—*Campaign Execution* (3rd. ed., October 2009).

UK Ministry of Defence, *The Permanent Joint Headquarters* (online, <https://www.gov.uk/government/groups/the-permanent-joint-headquarters>, accessed 15 August 2016).

### **Canadian Government sources**

Canadian Department of National Defence, Canadian Forces Joint Publication 01—*Canadian Military Doctrine* (Canadian Forces Joint Doctrine Branch, 2009).

Canadian Department of National Defence, Canadian Forces Joint Publication A1—*Joint Doctrine Development Manual* (Canadian Forces Experimentation Centre, 2010).

Canadian National Defence and the Canadian Armed Forces, *Establishment of the Canadian Forces Intelligence Command*, 19 September 2013 (online, <http://www.forces.gc.ca/en/news/article.page?doc=establishment-of-the-canadian-forces-intelligence-command/hlrp4gs7>, accessed 29 August 2016).

Canadian National Defence and the Canadian Armed Forces, *Canadian Joint Operations Command*, 16 September 2014 (online, <http://www.forces.gc.ca/en/about-org-structure/canadian-joint-operations-command.page>, accessed 17 August 2015).

Canadian National Defence and the Canadian Armed Forces, *Canadian Armed Forces Branches*, 27 January 2016 (online, <http://www.forces.gc.ca/en/caf-community-branches/index.page>, accessed 29 July 2016).

Canadian National Defence and the Canadian Armed Forces, *Chief of the Defence Staff: List of Armed Forces Council*, undated (online, <http://www.forces.gc.ca/en/about-org-structure/chief-of-defence-staff.page>, accessed 14 February 2017).

Canadian National Defence and the Canadian Armed Forces, *Chief of Military Personnel*, 6 June 2016 (online, <http://www.forces.gc.ca/en/about-org-structure/chief-military-personnel.page>, accessed 29 July 2016).

Canadian National Defence and the Canadian Armed Forces, *Operational Support in Canada*, 22 June 2016 (online, <http://www.forces.gc.ca/en/operations-support/cfjosg.page>, accessed 20 February 2017).

Canadian National Defence and the Canadian Armed Forces, *Strategic Joint Staff*, 21 July 2016 (online, <http://www.forces.gc.ca/en/about-org-structure/strategic-joint-staff.page>, accessed 29 July 2016).

Canadian National Defence and the Canadian Armed Forces, *The Canadian Forces Health Services (CFHS)*, undated but probably circa 2014 (online, <https://www.royalcdnmedicalsvc.ca/wp-content/uploads/2014/01/CFHS-Overview.pdf>, accessed 1 March 2017).

Coulter, Alycia, 'Canadian Forces Warfare Centre conducts Cage IIIB experiment', *National Defence and the Canadian Armed Forces*, 23 March 2015 (online, <http://www.forces.gc.ca/en/news/article.page?doc=canadian-forces-warfare-centre-conducts-cage-iiib-experiment/i7kv1qzj>, accessed 27 February 2017).

National Defence and the Canadian Armed Forces, *Canadian Army Command and Staff College (CACSC)*, undated (online, <http://www.forces.gc.ca/en/training-establishments/command-staffcollege-index.page>, accessed 21 February 2017).

National Defence and the Canadian Armed Forces, *Canadian Forces College*, 26 February 2017 (online, <http://www.cfc.forces.gc.ca/221-eng.html>, accessed 27 February 2017).

National Defence and the Canadian Armed Forces, *Military Personnel Generation (MILPERSGEN)*, 6 September 2016 (online, <http://www.forces.gc.ca/en/training-prof-dev/military-personnel-generation.page>, accessed 27 February 2017).

### **United States Government sources**

Chairman of the Joint Chiefs of Staff, *Joint Doctrine Development System*, Instruction No. CJCSI 5120.02B, dated 4 December 2009 (online, [http://www.dtic.mil/doctrine/new\\_pubs/cjcsi5120\\_02b.pdf](http://www.dtic.mil/doctrine/new_pubs/cjcsi5120_02b.pdf), accessed 6 August 2014).

National Defense University, *History of the National Defense University* (online, <http://www.ndu.edu/info/history.cfm>, accessed 25 December 2008).

United States Institute of Peace, *Guide for Participants in Peace, Stability and Relief Operations*, undated (online, <http://www.usip.org/node/5707>, accessed 13 February 2017).

US Defense Logistics Agency, *DLA at a Glance*, undated (online, <http://www.dla.mil/AtaGlance.aspx>, accessed 13 February 2017).

US Department of Defense, *Capstone Concept for Joint Operations: Joint Force 2020*, 10 September 2012.



US Department of Defense, *Defense Health Agency*, undated (online, <http://www.health.mil/dha>, accessed 1 March 2017).

US Department of Defense, *Functions of the Department of Defense and Its Major Components*, Directive No. 5100.01, 21 December 2010.

US Department of Defense, *Joint Doctrine Hierarchy*, 2 December 2016 (online, <http://www.dtic.mil/doctrine/doctrine/status.pdf>, accessed 27 February 2017).

US Department of Defense, *Joint Electronic Library: Joint Doctrine and Joint Publications*, 21 February 2017 (online, [http://www.dtic.mil/doctrine/new\\_pubs/jointpub.htm](http://www.dtic.mil/doctrine/new_pubs/jointpub.htm), accessed 27 February 2017).

US Department of Defense, *Joint Forces Staff College: Schools and Academic Programs*, undated (online, <http://jfsc.ndu.edu/Academics/>, accessed 23 February 2017).

US Department of Defense, Joint Publication 1—*Doctrine for the Armed Forces of the United States*, 25 March 2013.

US Department of Defense, Joint Publication 4-0—*Joint Logistics*, 16 October 2013.

US Department of Defense, *Joint Special Operations University: Fact Book: Executive Summary*, 2016 (online, [https://www.socom.mil/JSOU/JSOUPublications/2016\\_FactBook\\_ExSum\\_web\\_122816.pdf](https://www.socom.mil/JSOU/JSOUPublications/2016_FactBook_ExSum_web_122816.pdf), accessed 24 February 2017).

US Department of Defense, *Marine Corps University: Accreditation*, undated (online, <https://www.usmcu.edu/about-us/accreditation>, accessed 23 February 2017).

US Department of Defense, *National Defense University: Colleges and Centers*, undated (online, <http://www.ndu.edu/Academics/Colleges-Centers/>, accessed 21 February 2017).

US Department of Defense, *National Intelligence University: Accreditation*, undated (online, <http://ni-u.edu/wp/about-niu/accreditation/>, accessed 23 February 2017).

US Department of Defense, *Unified Command Plan*, 27 April 2011 (online: [http://www.defense.gov/home/features/2009/0109\\_unifiedcommand/](http://www.defense.gov/home/features/2009/0109_unifiedcommand/), accessed 8 August 2014).

US Department of Defense, *US Air University: Accreditation and Degree-Granting Authority*, 15 June 2016 (online, <http://www.airuniversity.af.mil/Academic-Affairs/Display/Article/800174/>, accessed 24 February 2017).

US Department of Defense, *US Army combined Arms Center: Command and General Staff College*, 2 December 2015 (online, <http://usacac.army.mil/organizations/cace/cgsc>, accessed 23 February 2017).

US Department of Defense, *US Army War College: Military Education Level I Programs*, undated (online, [http://www.carlisle.army.mil/programs/mel\\_1.htm](http://www.carlisle.army.mil/programs/mel_1.htm), accessed 23 February 2017).

US Department of Defense, *US Naval War College: Joint Professional Military Education*, undated (online, <https://www.usnwc.edu/Academics/Joint-Professional-Military-Edu.aspx>, accessed 23 February 2017).

US Joint Chiefs of Staff, *About the Joint Chiefs of Staff*, undated (online, <http://www.jcs.mil/About/>, accessed 13 February 2017).

US Joint Chiefs of Staff, *J7 Joint Force Development*, undated (online, <http://www.jcs.mil/Directorates/J7%7CJointForceDevelopment.aspx>, accessed 27 February 2017).

US Joint Chiefs of Staff, *Joint Doctrine Capstone and Keystone Primer* (US Department of Defense, 10 September 2001).

US Transportation Command, *About US Transportation Command*, undated (online, <http://www.ustranscom.mil/cmd/aboutustc.cfm>, accessed 13 February 2017).

### **North Atlantic Treaty Organization sources**

North Atlantic Treaty Organization, *NATO-Russia Glossary of Contemporary Political and Military Terms* (Brussels: NATO-Russia Joint Editorial Working Group, undated, promulgated online on June 8, 2001). (Online, <http://www.nato.int/docu/glossary/eng/index.htm>, accessed 14 August 2015).

North Atlantic Treaty Organization, *Operation UNIFIED PROTECTOR Command and Control*, undated but circa 2011 (online, [http://www.nato.int/nato\\_static/assets/pdf/pdf\\_2011\\_03/20110325\\_110325-unified-protector-command-control.pdf](http://www.nato.int/nato_static/assets/pdf/pdf_2011_03/20110325_110325-unified-protector-command-control.pdf), accessed 18 August 2016).

## **Secondary sources**

### **Books**

Anderton, David A. *The History of the US Air Force* (London: Hamlyn-Aerospace, 1981).

Ballard, John R., *From Storm to Freedom: America's Long War with Iraq* (Annapolis, MD: US Naval Institute Press, 2010).

Beaumont, Roger A., *Joint Military Operations: A Short History* (Westport: Greenwood Press, 1993).

Boot, Max, *War Made New: Technology, Warfare, and the Course of History, 1500 to Today* (New York: Gotham Books, 2006).

Booth, Ken, *Navies and Foreign Policy* (New York: Holmes & Meier, 1979).

Bousquet, Antoine, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (London: Hurst & Co., 2009).

Builder, Carl H., *The Masks of War: American Military Styles in Strategy and Analysis* (Baltimore, MD: John Hopkins University Press, 1989).

Carney, Stephen A., *Allied Participation in Operation Iraqi Freedom* (Washington DC: US Army Centre for Military History, 2011).

- Clausewitz, Carl von, *On War*, edited and translated by Michael Howard & Peter Paret (Princeton NJ: Princeton University Press, 1976).
- Cooling, Benjamin (Ed.), *Case Studies in the Development of Close Air Support* (Washington DC: Office of Air Force History, 1990).
- Crevelde, Martin van, *Supplying War: Logistics from Wallenstein to Patton* (Cambridge: Cambridge University Press, 1977).
- Crevelde, Martin van, *Technology and War: From 2000 B.C. to the Present* (New York: The Free Press, 1989).
- English, Allen, *Command and Control of Canadian Aerospace Forces: Conceptual Foundations* (Trenton: Canadian Forces Aerospace Warfare Centre, 2008).
- Heuser, Beatrice, *The Evolution of Strategy: Thinking War from Antiquity to the Present* (Cambridge: Cambridge University Press, 2010).
- Hoffman, Frank G., *Conflict in the 21st Century: The Rise of Hybrid Wars* (Arlington, VA: Potomac Institute for Policy Studies, December 2007).
- Holsti, Kalevi J., *Peace and War: Armed Conflicts and International Order, 1648-1989* (Cambridge: Cambridge University Press, 1991).
- Horner, David, *Making the Australian Defence Force*, The Australian Centenary History of Defence Vol. 4 (South Melbourne: Oxford University Press, 2001).
- Huntington, Samuel P., *The Soldier and the State: The Theory and Politics of Civil-Military Relations* (Cambridge MA: Harvard University Press, 1957).
- Jackson, Aaron P., *Doctrine, Strategy and Military Culture: Military-Strategic Doctrine Development in Australia, Canada and New Zealand, 1987-2007* (Trenton: Canadian Forces Aerospace Warfare Centre, 2013).
- Locher, James R., *Victory on the Potomac: The Goldwater-Nichols Act Unifies the Pentagon* (College Station: Texas A&M University Press, 2002).
- Mader, Markus, *In Pursuit of Conceptual Excellence: The Evolution of British Military-Strategic Doctrine in the Post-Cold War Era, 1989–2002*, Studies in Contemporary History and Security Policy No. 13 (Bern: Peter Lang, 2004).
- McKenna, Tim & Tim McKay, *Australia's Joint Approach: Past, Present and Future*, Joint Studies Paper Series No. 1 (Canberra: Defence Publishing Service, 2017).
- Morris, Ian, *Why the West Rules—For Now: The Patterns of History and what they Reveal about the Future* (London: Profile Books, 2010).
- Morton, Desmond, *A Military History of Canada: From Champlain to Kosovo*, 4th ed. (Toronto, ON: McClelland & Stewart, 1999).
- Pollack, Kenneth M., *Arabs at War: Military Effectiveness, 1948-1991* (USA: University of Nebraska Press, 2004).

Ralston, David B., *Importing the European Army: The Introduction of European Military Techniques and Institutions into the Extra-European World, 1600-1914* (Chicago: University of Chicago Press, 1990).

Sharp, Martin, *Command and Control of Battlefield Helicopters: The Search for a Joint Approach* (Canberra: RAAF Air Power Studies Centre, 1998).

Sloan, Elinor C., *Modern Military Strategy: An Introduction* (London and New York: Routledge, 2012).

Soanes, Catherine & Angus Stevenson (Eds.), *Oxford Dictionary of English*, 2nd ed., revised (Oxford: Oxford University Press, 2005).

Tilly, Charles, *Coercion, Capital, and European States, AD 990-1992* (Cambridge, MA: Blackwell, 1992).

Vego, Milan, *Operational Warfare* (Rhode Island: US Navy War College, 2000).

Wright, Donald P. & Timothy R. Reese, *On Point II: Transition to a New Campaign* (Fort Leavenworth, KS: Combat Studies Institute Press, 2008).

### **Chapters in edited books**

Ayuso, Wanda & Lonnie Henley, 'Aspiring to Jointness: PLA Training, Exercises, and Doctrine, 2008-2012' in: Roy Kamphausen, David Lai & Travis Tanner (Eds.), *Assessing the People's Liberation Army in the Hu Jintao Era* (Carlisle, PA: US Army War College Press, 2014).

Cassidy, Richard, 'In the Footsteps of Others: Team NZDF's Quest for Jointness' in: Joel Hayward (Ed.), *A Joint Future? The Move to Jointness and its Implications for the New Zealand Defence Force* (Palmerston North: Massey University, 2000).

Dandeker, Christopher, 'On "The Need to be Different": Recent Trends in Military Culture' in: Hew Strachan (Ed.), *The British Army, Manpower and Society into the Twenty-First Century* (London: Frank Cass, 2000).

Hattendorf, John B., 'Sea Warfare' in: Charles Townshend (Ed.), *The Oxford Illustrated History of Modern War* (Oxford: Oxford University Press, 1997).

Horner, David, 'The Higher Command Structure for Joint ADF Operations' in: Ron Huisken & Meredith Thatcher (Eds.), *History as Policy: Framing the Debate on the Future of Australia's Defence Policy*, Canberra Papers on Strategy and Defence No. 167 (Canberra: Australian National University EPress, 2007).

Johnston, Stanley, 'Coral Sea: "Scratch One Flat-Top"' in: William H. Honan (Ed.), *Great Naval Battles of the Twentieth Century* (London: Robson Books, 1993).

Kerr, Elizabeth, 'Culture and French Military Doctrine Before World War II' in: Peter J. Katzenstein, *The Culture of National Security: Norms and Identity in World Politics* (New York: Columbia University Press, 1996).

Lorge, Peter, 'Water Forces and Naval Operations' in David A. Graff and Robin Higham (Eds.), *A Military History of China* (Boulder: Westview Press, 2002).

Moore, Tom, 'Midway: I Dive-Bombed a Jap Carrier' in: William H. Honan (Ed.), *Great Naval Battles of the Twentieth Century* (London: Robson Books, 1993).

Peskett, Gordon R., 'Levels of War: A New Canadian Model to begin the 21st Century' in: Allan English, Daniel Gosselin, Howard Coombs & Laurence M. Hickey (Eds.), *The Operational Art: Canadian Perspectives: Context and Concepts* (Kingston: Canadian Defence Academy Press, 2005).

Potter, David, 'The Roman Army and Navy', in Harriet I. Flower (Ed.), *The Cambridge Companion to the Roman Republic* (Cambridge: Cambridge University Press, 2004).

### Journal articles

Carey-Hughes, E. M., 'Hellyer and the Unification of Canada's Armed Forces', *Baltic Security and Defence Review*, Vol. 14, No. 2 (2012), pp. 181-198.

Codner, Michael, 'Purple Prose and Purple Passion: The Joint Defence Centre', *RUSI Journal*, Vol. 144, No. 1 (February/March 1999), pp. 36-40.

Cole, Ronald H., 'Grenada, Panama, and Haiti: Joint Operational Reform', *Joint Force Quarterly*, No. 20 (Autumn/Winter 1998-99), pp. 57-64.

Connaughton, Richard M., 'Organizing British Joint Rapid Reaction Forces', *Joint Force Quarterly*, No. 26 (Autumn 2000), pp. 87-94.

Gagliardi, Pasquale, 'The Creation and Change of Organizational Cultures: A Conceptual Framework', *Organizational Studies*, Vol. 7, No. 2 (April 1986), pp. 117-134.

Garnett, G. L., 'The Evolution of the Canadian Approach to Joint and Combined Operations at the Strategic and Operational Level', *Canadian Military Journal*, Vol. 3, No. 4 (Winter 2002-03), pp. 3-8.

International Institute for Strategic Studies, *The Military Balance*, Vol. 117 (2017).

International Institute for Strategic Studies, *The Military Balance*, Vol. 114 (2014).

Jones, David C., 'Past Organizational Problems', *Joint Force Quarterly*, No. 13 (Autumn 1996), pp. 23-28.

Lawrence Paul R. & Jay W. Lorsch, 'Differentiation and Integration in Complex Organizations', *Administrative Science Quarterly*, Vol. 12, No. 2 (June 1967), pp. 1-47.

Locher, James R., 'Has it Worked? The Goldwater-Nichols Reorganization Act', *Naval War College Review*, Vol. 54, No. 4 (Autumn 2001), pp. 95-115.

March, William, 'Different Shades of Blue: Interwar Air Power Doctrine Development. Part 1: Air Power, Doctrine and the Anglo-American Approach', *Canadian Air Force Journal*, Vol. 2, No. 1 (Winter 2009), pp. 16-27.

March, William, 'Different Shades of Blue: Interwar Air Power Doctrine Development. Part 2: Germany and Japan', *Canadian Air Force Journal*, Vol. 2, No. 2 (Spring 2009), pp. 17-29.

Marquis, Christopher G., Denton Dye & Ross S. Kinkead, 'The Advent of Jointness During the Gulf War: A 25-year Retrospective', *Joint Force Quarterly*, No. 85 (2nd Quarter 2017), p. 76-83.

Murray, Williamson, 'The Evolution of Joint Warfare', *Joint Force Quarterly*, No. 31 (Summer 2002), pp. 30-37.

Owen, William F., "The Operational Level of War Does Not Exist", *The Journal of Military Operations*, Vol. 1, No. 1 (Summer 2012), pp. 17-20.

Paparone Christopher R. & James A. Crupi, 'What is Joint Interdependence Anyway?', *Military Review*, Vol. 84, No. 5 (July/August 2004), pp. 39-41.

Pettigrew, Andrew M., 'On Studying Organizational Cultures', *Administrative Science Quarterly*, Vol. 24, No. 4 (December 1979), pp. 570-581.

Schein, Edgar H., 'Coming to a New Awareness of Organizational Culture', *Sloan Management Review*, Vol. 25, No. 2 (Winter 1984), pp. 3-16.

Schilling Melissa A. & Christopher R. Papparone, 'Modularity: An Application of General Systems Theory to Military Force Development', *Defense Acquisition Review Journal*, 1 July 2005, pp. 279-293.

Stephens, Alan, 'The Clash of Cultures: Command and Control in Joint Warfare', *Australian Defence Force Journal*, No. 174 (November/December 2007), pp. 4-17.

Thomas, George M. & John W. Meyer, 'The Expansion of the State', *Annual Review of Sociology*, No. 10 (1984), pp. 461-482.

Weick, Karl E., 'Drop Your Tools: An Allegory for Organizational Studies', *Administrative Science Quarterly*, Vol. 41, No. 2 (June 1996), pp. 301-313.

Weick, Karl E., 'The Role of Imagination in the Organizing of Knowledge', *European Journal of Information Systems*, Vol. 15, No. 5 (September/October 2006), pp. 446-452.

### **Other secondary sources**

Bowman, Steve & Catherine Dale, *The War in Afghanistan: Strategy, Military Operations, and Issues for Congress*, Congressional Research Service Report for Congress No. R40156, 3 December 2009.

Clark, R. J., *Joint Organisation: A Canadian Way Ahead* (Toronto: Canadian Forces College MDS Research Paper, Command and Staff Course 31, undated).

Feickert, Andrew, *The Unified Command Plan and Combatant Commands: Background and Issues for Congress*, Congressional Research Service Report No. R42077, 3 January 2013 (online, <https://www.fas.org/sgp/crs/natsec/R42077.pdf>, accessed 17 August 2015).

Harvey, Dave, 'Straight Talking from the Top, at MoD Abbey Wood', *BBC News*, 12 May 2011 (online, [http://www.bbc.co.uk/blogs/daveharvey/2011/05/straight\\_talking\\_from\\_the\\_top.html](http://www.bbc.co.uk/blogs/daveharvey/2011/05/straight_talking_from_the_top.html), accessed 14 February 2017).

Kamarck, Kirsty N., *Goldwater-Nichols and the Evolution of Officer Joint Professional Military Education (JPME)*, Congressional Research Service Report for Congress No. R44340, 13 January 2016.

Lowe, Donald & Tim McKay, *Towards a Theory of Joint*, Defence Science and Technology Group Report No. DST-Group-DP-1362, July 2016.

Thomson, Mark, 'Trends in US defence spending: implications for Australia', *Policy Analysis 56* (Canberra: Australian Strategic Policy Institute, 2010). (Online, [https://www.aspi.org.au/publications/trends-in-us-defence-spending-implications-for-australia-by-mark-thomson/Policy\\_Analysis56\\_US\\_defence\\_spending.pdf](https://www.aspi.org.au/publications/trends-in-us-defence-spending-implications-for-australia-by-mark-thomson/Policy_Analysis56_US_defence_spending.pdf), accessed 2 May 2017).

Vanguard Staff, 'Concepts Sandbox: An Innovation Centre for Joint Capability Development', *Vanguard*, 1 July 2011 (online, <http://www.vanguardcanada.com/2011/07/01/concepts-sandbox-innovation-centre-joint-capability-development/>, accessed 27 February 2017).





# JOINT STUDIES PAPER SERIES

---

## About the series

Over the last three decades, each of the three Australian Services has established a centre of excellence to conduct academic research and development in relation to their core functions. These centres have made excellent contributions to the literature on military activities in the maritime, land, air and space domains, primarily through the establishment and promulgation of studies paper series. To date, however, the Australian Defence Force (ADF) has had no equivalent outlet for academic research and development relating to the conduct of joint military activities.

The Joint Studies Paper Series will help to fill this gap. A collaborative venture between Australian Defence Force Headquarters, Defence Science and Technology Group and the Australian Defence College, the series will help to shape future joint best practice within the ADF through the promulgation of research about the past, present and future of joint military activities.

Papers in the series are available in hard copy and online. They can be downloaded free of charge from: [http://www.defence.gov.au/ADC/publications/Joint\\_Studies.asp](http://www.defence.gov.au/ADC/publications/Joint_Studies.asp).

## Call for submissions

The Joint Studies Paper Series welcomes unsolicited submissions on a range of topics related to joint military activities. Ideally, papers should be linked to the Australian experience of joint or should contain information that will be of interest to the ADF, however papers examining other joint topics may be considered depending on their focus and content. For example, papers exploring topics in the following areas will be of particular interest to the series:

- joint force design and experimentation
- joint capability development, management and integration
- fundamental inputs to capability
- joint professional military education and training
- joint doctrine, theory and concepts (including future concepts)
- joint and organisational culture (including cultural change management)
- joint planning, design thinking and evaluation
- historical aspects of joint.

Papers submitted for consideration should be longer than a journal article but shorter than a book; between 10,000 and 70,000 words (inclusive of notes) is ideal. References should be included in endnote form and individual citations should be formatted in accordance with the Chicago Manual of Style. If the series editor decides to proceed with considering an unsolicited submission, it will be subjected to blind peer review prior to publication.

Potential contributors are strongly encouraged to contact the editor to discuss their paper idea prior to submission of the paper itself. The editor can be contacted at: [cdr.publications@defence.gov.au](mailto:cdr.publications@defence.gov.au).

## Papers in the series

- No. 1 ***Australia's Joint Approach: Past, Present and Future***, by Tim McKenna & Tim McKay
- No. 2 ***The Four Aspects of Joint: A Model for Comparatively Evaluating Jointness within Armed Forces***, by Aaron P. Jackson

*This page is intentionally blank*

In the past 30-40 years several Western militaries have undergone substantial joint reforms. Joint operations and permanent joint organisations have become the norm. Joint professional military education courses are now common and joint doctrine has proliferated. Yet underlying these and other joint reforms there remains a theoretical void. Put bluntly, the theory of joint military activities has not kept pace either with practice or with the development of theory for military activities in the maritime, land, air or even space domains. This paper takes a step towards filling this void by establishing a joint theoretical model labelled 'the four aspects of joint'. This model is then applied to conduct a comparative evaluation of jointness in the US, British, Australian and Canadian armed forces, enabling identification of areas where each armed force may learn from the joint reforms of the others and highlighting several areas for further research. Accordingly, it is hoped that this paper will prompt the further development of joint military activities theory in the near future.

**Dr Aaron P. Jackson** is Joint Operations Planning Specialist in the Joint and Operations Analysis Division of Defence Science and Technology Group.