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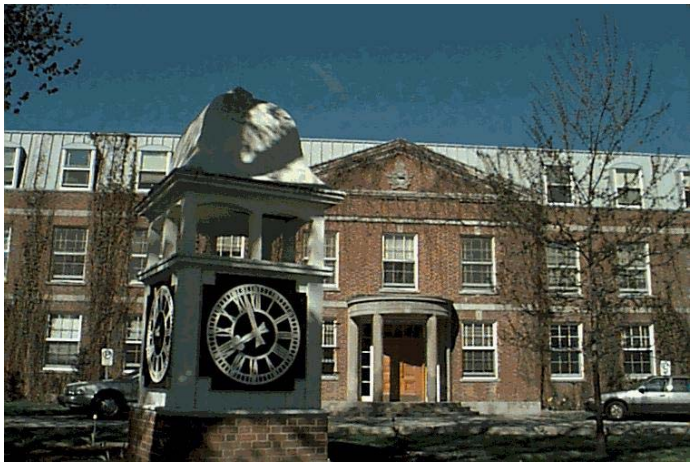

EFFICIENCY AND EFFECTIVENESS – MILITARY MYTH OR NECESSITY?

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Abstract

Efficiency and effectiveness are concepts that most will claim to understand. In recent years, Defence has been subjected to increasing numbers of reviews intent on improving 'efficiency and effectiveness' within the organisation. These reviews have been unable to understand why the military is unable to conform to commercial business practices in its management of budgetary allocation. Likewise, military doctrine considers efficiency and effectiveness ubiquitous, in that their meaning is unchanging across the scope of the organisation, and applies equally. The terms efficiency and effectiveness have variable, contextual meanings across the levels of war. In addition, the environment (operational or non-operational) influences the required balance of efficiency and effectiveness. The terms are often held in tension, in that achieving one may be detrimental to the other. It is the role of military planners across the levels of war to understand and balance these competing requirements in order to deliver both Defence's capability outcomes, and Public value for money.

INTRODUCTION

On 3 May 2012, then Prime Minister of Australia, Julia Gillard, announced that the Australian Government would cut $1B a year from the Department of Defence Budget through the delay or cancellation of major projects for the next four to five years.[1] Some commentators remarked at the time that the announcement came without a strategic vision for how this dramatic change in departmental funding would affect the capacity of

[1] ABC News, "Defence Cuts 'tough yet manageable'", *ABC News*, last modified 3 May 2012, http://www.abc.net.au/news/2012-05-04/defence-fraternity-questions-military-spending-cuts/3989888, and John Kerin, "Budget Cuts to go deeper in defence", *Australian Financial Review*, last modified 3 May 2012, http://www.afr.com/news/policy/defence/budget-cuts-to-go-deeper-in-defence-20120508-j2y1i.

the Australian Defence Force to operate effectively.[2] Retired Major General Jim Molan commented, "Sadly there is little evidence the cuts in defence spending have any coherent link to the country's strategic security needs."[3]

In response to this drive for efficiency and effectiveness, the Defence Department's response would become the Strategic Reform Program (SRP). The SRP is the Department's attempt to apply strategy to the political imperative to reduce overall funding, while providing improved capability outcomes. Nick Warner, the Secretary of the Department of Defence, and Air Chief Marshal Houston, the serving Chief of the Defence Force, stated in the SRP "Defence must operate as efficiently as possible to extract the maximum value from [departmental] funding."[4] The Department of Defence, through the SRP, anticipated that it could conclude savings of $2B a year[5] for a decade, $15B beyond the budget cut requirement announced by the Prime Minister.

The report identifies external drivers for change, citing cost (budget) pressures post-Global Financial Crisis and mining boom, and the requirement to bring the Department of Defence in line with other departmental accounting and financial responsibility standards. It discusses increasing capability while reducing cost, increasing efficiency while increasing the effectiveness of the Australian Defence Force. It states

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[2] John Kerin, "Defence proves easy budget target", *Australian Financial Review*, last modified 4 May 2012, http://afr.com/p/national/defence_proves_easy_budget_target_0Bi7uiRHnUQkD7WHhg6g6K.

[3] John Kerin, *Budget Cuts to go deeper in defence…*

[4] Australian Government, *Strategic Reform Program: Delivering Force 2030* (Canberra ACT: Department of Defence, 2009), 3.

[5] The Defence Budget for 2012-2013 was set at B$24.2, meaning that the agreed cut was 10% of the approved budget, Australian Government, "Defence Budget Overview", Parliament Library, last accessed 24 April 15, http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/BudgetReview201314/DefenceBudget.

"Implementing smarter, tighter and more cost effective business processes and practices will make sustainment and support management more efficient and effective."[6] But the question remains – what do departmental (military) planners believe 'efficient and effective' looks like for the Department of Defence? Does this vision align with what the public or government expects efficiency and effectiveness to mean?

Logisticians (both military and civilian) focus on achieving 'efficient and effective' outcomes. By misrepresenting or failing to contextualise the role of efficiency and effectiveness in Military Logistics, militaries undermine their case in lobbying governments for resources. Understanding what efficient and effective logistics means, and the appropriate trade-off required to achieve one or the other will allow Logistic planners to consider problems more accurately.

While the terms efficiency and effectiveness seem to hold clear meaning in corporate literature, they have variable, contextual meanings across the levels of the military. This paper will therefore evaluate the importance and impact of efficiency and effectiveness in the pursuit of military outcomes in the Australian Defence Force. Efficiency, espoused at the Corporate level by the SRP and other initiatives, is the completion of required outputs for minimum financial input. Thompson et al write that efficiency is the ability to provide the same product at lower cost than rival organisations.[7] Corporate effectiveness is producing the correct output for the target market, or providing products or services that customers value more highly.[8] Both

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[6] Australian Government, *Strategic Reform Program*… 5.

[7] Alan Thompson, *et al*., *Crafting and Executing Strategy: The Quest for Competitive Advantage*, 19th Edition (London, UK: McGraw-Hill Education (ebook)), 1703/22723.

[8] *Ibid*.

efficiency and effectiveness position corporate organisations to maximise both market share and profit. For military organisations, the terms efficiency and effectiveness have variable meanings, which may be misaligned with the corporate mindset that these reviews bring. Given the importance of cost reduction and market alignment in the success of commercial endeavours, much has been written regarding the interaction between efficiency and effectiveness in commercial logistic systems. Similarly, a significant body of work has been completed on defence outputs, what militaries contribute to National Power. While professional military personnel may briefly engage with commercial or academic thought as part of their development, little has been written within the military context regarding the role of efficiency and effectiveness across the organisation, and any interrelationship.

Methodology

In order to answer the question: Efficiency and Effectiveness – Military Myth or Necessity, this paper will approach the question in three ways. A literature review will focus on the broad areas of discussion of government, military and commercial logistic systems. The review of military thought will necessarily focus on doctrine as the primary vehicle through which military personnel are trained and socialised, and will argue that doctrine is largely silent on the important role of efficiency in military logistics. The paper will then conduct a discussion of academic and civilian theory about efficiency and effectiveness. The final section will seek to answer the question of what efficiency and effectiveness means in the modern military context – as static or variable elements – using the basis of the Okros Conceptual Model. It will posit a specific understanding of the role of efficiency and effectiveness across the military organisation and provide recommendations for how to resolve perceived conflict between the elements, particularly

through greater education for military professionals. These recommendations will be limited to the conceptual framework rather than delving into a more broad discussion on the training and education of military personnel, a sufficiently large topic for another paper. While this paper will focus on the application of these ideas to the Australian Defence Force, it will include a broad literature review. This is intended to allow consideration and application of the recommendations across similar Western military systems.

Tangentially related avenues of inquiry that will not be discussed in detail in this paper include the role of civil control over the military, and therefore the question of whether fiscal efficiency or capability output (military effectiveness) drives the development, budgeting and execution of strategy at the Strategic level. At this level, the resourcing of strategic decisions and strategic prioritisation directly influences the amount of resources available to Operational and Strategic planners. Additionally, the role of risk is not addressed in depth – both political and other risk that play a significant role in the appreciation of efficiency/effectiveness. For example, the Australian government's recent realignment of B$10 carries both elements of political risk (low) and capability risk (possibly high). The wisdom of taking that risk lies in the unknowable future security environment and Australia's capacity to respond to developing threats.

Background

The SRP is not the first time that the Australian Government has asked Defence to achieve efficiency and effectiveness goals. The Cooksey, Dibb, Force Structure, Defence

Efficiency, Kinnard, Defence Management and Mortimer reviews[9] all recommended both fiscal and structural ways to increase efficiency and effectiveness within the Department of Defence. In addition, the Commercial Support Program,[10] Defence Reform Program, and the 1976, 1987, 1994, 2000, 2009 and 2013 White Papers[11] sought to find ways to reform the department to provide better value for money to the Government. Thomson argues that the 2009 Strategic Reform Program was only beginning to establish the structures recommended in the 1997 Defence Reform Program.[12] In the current financial environment, and the strategic position envisioned within the Defence White Paper 2013, there is no doubt that spending within the Australian Defence Force should be reconsidered.

The Australian Government's attempt to accomplish structural alignment of efficiency and effectiveness within the Australian Defence Force includes the recently published *First Principles Review* (FPR).[13] The FPR states clearly that within the Department of Defence, and the ADF in particular, "Waste, inefficiency and rework are

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[9] All Defence reviews from 2003 to present are available at http://www.defence.gov.au/Publications/Reviews/. Other reviews and intiatives can be found at http://www.defence.gov.au/publications/.

[10] Allan Shephard, "The Defence Commercial Support Program: Saving $200 Million a Year for Defence Procurement?", *Department of the Parliamentary Library*, retrieved 14 April 15, https://www.aph.gov.au/binaries/library/pubs/rp/1993/93rp02.pdf.

[11] Australian Government, Defence White Papers 1976-2013, last accessed 14 April 15, http://www.defence.gov.au/Whitepaper/Links.asp.

[12] Mark Thomson, "Defence Reform: The Australian Experience", *ASPI*, June 2013, last accessed 13 May 15, https://www.aspi.org.au/__data/assets/pdf_file/0011/17210/Workshop_Canada_Thomson_fiinal_June-2013.pdf, 3.

[13] Australian Government, "First Principles Review: Creating One Defence", Canberra ACT 2015, released 1 Apr 15, http://www.defence.gov.au/publications/reviews/firstprinciples/Docs/FirstPrinciplesReviewB.pdf

palpable."[14] The principal view of the authors, based on their research into previous reviews of the ADF, is that Defence does not understand the nature of the problem, and therefore has lost the trust of Government.[15] Specifically, the report states that Defence "must transform itself in order to deliver the required public value."[16] The principal unanswered question posed by the authors in the FPR report however is, "we were puzzled as to why Defence has been unable to reform itself."[17]

Given the purpose of military forces, to defend the country and promote its interests at home and overseas; the dominant mindset of military personnel tends towards completion of assigned tasks. The reviews of defence described above however, focus on the fiscal component of the military organisation. The difference in focus between the military and its political masters may therefore hold the answer to the questions posed by the FPR authors. In recent conflicts such as East Timor, the Solomon Islands, Iraq and Afghanistan, the ADF has served effectively. Success has been based on military functions, not budgetary targets. When returning to barracks, however, how does the military define success? How should it adjust to a non-operational environment? It is the intent of this paper to address this aspect of the efficiency and effectiveness problem.

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[14] *Ibid.,* 13.

[15] *Ibid.,* 15.

[16] *Ibid.,* 16.

[17] *Ibid.*

The Okros Conceptual Model

Dr Alan Okros, a Canadian Department of National Defence academic who specialises in personal and institutional leadership, prepared a paper entitled "Developing Fully Effective General/Flag Officers and their Staff"[18] to identify the key training requirements for senior defence personnel to better equip them for working in the political-civilian environment. In the course of research, Dr Okros identified that the development of military personnel (both Officers and Non-Commissioned Officers) trains personnel to be generalist in nature. Specifically, military personnel follow a military-centric development process in order to generate high quality military commanders and leaders that focus on one specific skillset, Command appointments at the tactical and Operational level. Dr Okros' thesis is that the development process for military personnel only encompasses competencies relevant to one dimension of the environments in which they are required to operate.

In presenting this thesis, Dr Okros outlines five domains in which military personnel must operate. These are the domains of the Business of Defence, Domestic and International Operations, the Machinery of Government, and the social domains of the Social and Political Milieu and the Profession of Arms. Okros identifies that the horizontal relationship between the Machinery of Government, Business of Defence and Domestic and International Operations is a sliding scale of focus either on efficiency or effectiveness, shown at Figure 1. It is across this scale that this paper will investigate the relationship between efficiency and effectiveness, and any changes in that relationship based on the domain in which military personnel operate. The two social domains of the

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[18] Dr Alan Okros, "Developing Fully Effective General/Flag Officers and their Staff, Officer Developmental Period 4/5", *Project Strategic Leader*, April 2014.

Social and Political Milieu and the Profession of Arms will not be covered as part of this paper. While sociology has a role to play in the interrelationship of the domains, this paper focuses more strictly on the levels and role of the organisation.

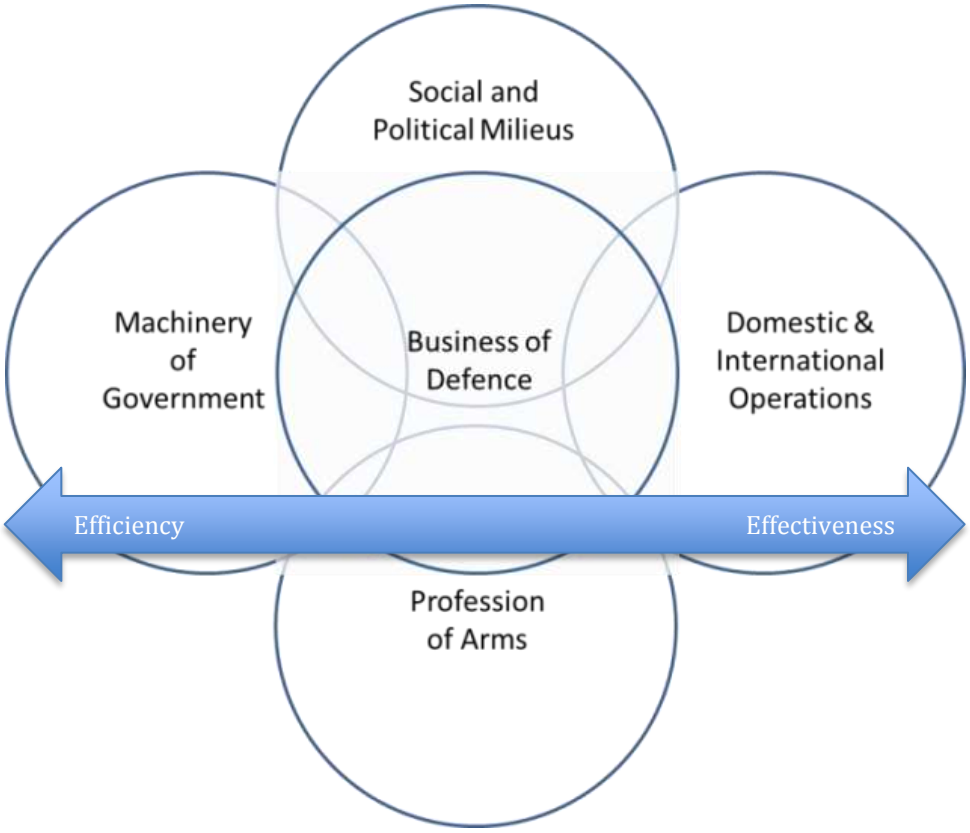

Figure 1: The Okros Conceptual Model.[19]

In adapting this model to illustrate the efficiency and effectiveness relationship across the organisation, a common meaning for the domains is important. In the Okros model, the Machinery of Government refers to the "regulatory and control functions exercised across government and particularly the bureaucratic processes employed,"[20] including compliance with government regulation and direction. The Business of Defence is the domain "in which political direction, bureaucratic controls and professional

[19] *Ibid.*

[20] *Ibid.*, 3.

requirements are integrated to set the conditions for success in operations."[21] This level acts as a 'buffer' between the other domains and the conduct of operations, contextualising direction and regulation while providing resources and strategy. This level ensures that operational outcomes align with political requirements. The third domain, Domestic and International Operations, is likely the most comfortable for military personnel. The domain plans and conducts military operations, and encompasses the maintenance, training and development of the capabilities required to produce Defence's military output. Okros identifies that this level includes "strategic and operational planning staff and subordinate leaders,"[22] however this paper will demonstrate that the placement of strategic and operational staff is contextual.

In utilizing the Okros Conceptual Model, this paper will seek to understand the concept of efficiency and effectiveness across the Strategic, Operational and Tactical levels of the organisation. This paper will also include a second categorisation, that of operational and non-operational functions. This will consider how the interrelationship between efficiency and effectiveness may change whether the organisation is 'at war' or 'in barracks'.

LITERATURE REVIEW

Efficiency and Effectiveness in the Military – Doctrine

In the military environment, doctrine is the central element from which members of the organisation derive a socialised, common understanding of crucial concepts. General Decker stated, "Doctrine provides a military organization with a common

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[21] *Ibid*.

[22] *Ibid.,* 2.

philosophy, a common language, a common purpose, and a unity of effort."[23] In both enlisted and officer training, doctrine is the primary source of reference for defining key concepts within the military organisation. Unless military planners conduct independent study to achieve a scholarly or commercial understanding of the concepts, it is unlikely that they will have another frame of reference when moving between the different levels of the organisation. It is therefore important to conduct a brief study of the way that military doctrine treats the concepts of efficiency and effectiveness, and any interrelationship between the two. In order to limit the discussion to influences relevant to the Australian Defence Force, the doctrinal overview will be limited to Joint publications of ABCA (America, Britain, Canada and Australia) and NATO capstone logistic doctrine. ABCA is relevant to this thesis in that the four nations contained within are all English speaking countries that invest heavily in interoperability and readily share doctrinal concepts. NATO by way of contrast is a multinational organisation, which deals with national level rather than tactical planning. Joint doctrine is the 'fusion' doctrine of multiple services, often written to deal with the Operational to Strategic level, and as such it is considered the most appropriate type of doctrine for this study.

The concepts of efficiency and effectiveness are flavoured by the context in which the terms are employed. ABCA nations do not agree on a common definition, and although the linguistic (English) meaning of these terms is common, their specific nuance varies based on the intent of the author. Some of the ABCA nations attempt to define the relationship between efficiency and effectiveness, but few take the leap to understand

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[23] General George H. Decker, (speech, US Army Command and General Staff College, Fort Leavenworth, Kansas, 16 Dec 1960, quoted in Peter Tsouras, *The Greenhill Dictronary of Military Quotations*, (Mechanicsburg PA: Greenhill Books, 2000), 154).

how these concepts change at differing levels of the organisation, and how that relates to the organisation as it transitions from the tactical to Strategic or corporate level.

Efficiency and effectiveness in military doctrine and literature are poorly defined and confused with what the authors desire them to mean. Too often used in parallel and therefore conflated, these terms are distinct and contextual.

UK Doctrine

UK Joint doctrine considers efficiency and effectiveness as interrelated in their contribution to the required logistic outcome. Described as one of the principles of logistics, doctrine outlines that efficiency may conflict with other elements, such as agility (flexibility) in a war-fighting environment.

In contrast to other military doctrine, the UK takes the opportunity to contrast military logistic efficiency with commercial efficiency. Logistic efficiency is defined by its relationship to resources; it is defined as "the maximum level of support for the least logistic effort and making the best use of finite resources."[24] UK Joint doctrine goes on to outline that in contrast to commercial ideas, resource analysis does not provide the full picture. In some environments, duplication and redundancy may be required to balance the imperative for effectiveness. In this case, efficiency includes leveraging mutual supportability within Joint capability packages. Depending on the environment, logistic efficiency may also dictate non-military support arrangements[25] and concludes that the end state of Joint logistic support is efficiency and speed.[26]

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[24] United Kingdom. Ministry of Defence. *JDP 4-00, Logistics for Joint Operations.* (Swindon, Wiltshire, UK: The Development, Concepts and Doctrine Centre, April 2007), 1-6.

[25] *Ibid.,* Lexicon-14.

[26] *Ibid.,*1-14.

In planning Joint Supply Chains, the UK identifies three elements essential to an efficient supply chain; a focus on the end user, system integration and minimization of variability, inflexibility and waste.[27] UK Joint doctrine states that multinationality increases efficiency and effectiveness.[28] The caveat to this idea is that the use of host nation support (HNS) logistic support "must reflect the most effective use of resources available to fulfil the requirement."[29] This continues the thread that identifies that efficiency should not undermine operational effectiveness.

While the UK does not specifically define logistic effectiveness, the concept of logistic efficiency is closely identified with operational effectiveness – that is, a structure or system cannot be effective if it is not also efficient. This idea is reflective of a growing sense of awareness that at the higher level, the appropriate use of resources is an important aspect of military planning.

US Doctrine

US doctrine attempts to address the difference between efficiency and effectiveness goals at the tactical, Operational and Strategic levels. A logical deduction from this doctrinal concept is that there is an intersecting point between the primacy of cost-related efficiency and effectiveness that differs at various levels of the military organisation.

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[27] *Ibid.*,3-2; The idea of minimising inflexibility seems contra purpose to efficiency, but is used in this sense to denote that truly efficient supply chains must remain adaptive to the environment.

[28] *Ibid.*, 10-5.

[29] *Ibid.*, 10-9.

US doctrine maintains a similar resource-centric view of efficiency to UK doctrine.[30] The mechanism used to define this differs however. It states, "In the tactical and operational environments, inefficiency increases the logistics footprint, force protection requirements, and risk."[31] US doctrine also describes the implications of inefficiency at the Strategic level, stating, "Inefficiency increases the cost and risk for the operation."[32] While sensitive to the fact that simplicity and efficiency are often in conflict in military operations, US doctrine discusses an interrelationship between simplicity and efficiency. This identifies for military planners a requirement to hold competing interests in balance depending on the context.

US Joint doctrine introduces the idea that the logistic outcome requirement varies at the Strategic, Operational and Tactical levels. Effectiveness is stated as the primary outcome of Tactical level logistics, with effectiveness at the Strategic level "dependent upon optimizing processes against required outcomes."[33] It goes so far as to discuss measures of effectiveness, particularly that effectiveness can be measured using three attributes (or KPIs): Speed, Reliability and Efficiency.[34] US doctrine therefore provides a good basis for understanding that there are a number of interrelated factors in logistic planning. It remains focused however on the operational setting and does not discuss the difference between planning in the operational or non-operational environment.

Canadian Doctrine

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[30] United States. Department of Defense. *US JP-4.0, Joint Logistics.* (Washington, DC: Chairman Joint Chiefs of Staff, 16 October 2013), I-9.

[31] *Ibid.*

[32] *Ibid.*

[33] *Ibid.,* I-5,

[34] *Ibid.,* I-8

The Canadian Forces do not have a cohesive Joint doctrine on sustainment from which to draw a force-wide view of efficiency and effectiveness. The individual service definitions are therefore contextual. Land force doctrine addresses the tension inherent in efficiency versus effectiveness ideas. It specifies that in the delivery of effective sustainment, inefficient processes are inevitable. It does not proscribe a balance or methodology for assessing the appropriate crossover between truly efficient or truly effective methods of support. Repeatedly in doctrine however, it describes the necessity for both efficiency and effectiveness in land sustainment.[35]

Land doctrine describes efficiency as the minimization of resource cost[36] through reduction in duplication of functions and the synchronization of the components of the logistic system.[37] Importantly, it is neither the over provision nor under provision of resources.[38] Over provisioning in this case may lead to the abandonment of stores and thereby the waste of those resources, and under provisioning is the inability to provide the right product or item at the right time in the right place, a common measure of effectiveness in logistic systems.

Canadian doctrine describes the role of control in logistic systems, stating, "control exercised at a higher level provides more effective support."[39] Doctrine also states that effectiveness of land force distribution systems relies significantly on the

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[35] Canada. Department of National Defence. B-GL-300-004/FP-001, *Sustainment of Land Operations*. (Kingston, ON: Chief of the Land Staff, Dec 2010), 3-8, 5-7, 7-7.

[36] *Ibid.*, 2-8

[37] *Ibid.*, 3-6

[38] *Ibid.*, 2-2

[39] *Ibid.*, 2-7

efficiency of support facilities,[40] describing an interrelationship between the two elements. Sections of doctrine imply that effectiveness in logistic sustainment is the ability of the logistic system to enable the land force commander's mission. In addition, doctrine offers many 'keys'[41] to effectiveness in different scenarios but fails to justify why these are suitable measures of effectiveness in the military context. It does not attempt to specifically define effectiveness or quantify measures of effectiveness in the way that US Joint Doctrine does.

Aerospace Doctrine is somewhat less revealing about the relationship between efficiency and effectiveness. The concepts of efficiency and effectiveness are used in parallel four times,[42] synonymously two times[43] and efficiency is referred to in resource-specific language three times.[44] Aerospace doctrine describes effective sustainment as a combination of quality, destination, delivery time and sequence.[45] It also describes the "five principles for the effective conduct of sustainment"[46] as primacy of operations, economy, flexibility, simplicity, and cooperation. The use of the terms efficiency and effectiveness both in parallel and synonymously may be indicative of the fact that the aerospace support environment has a lower risk of variability.

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[40] *Ibid.*, 3-14

[41] *Ibid.*, 3-4, 3-5, 3-6, 3-8.

[42] Canada. Department of National Defence. *B-GA-406-000/FP-001, Canadian Forces Aerospace Sustain Doctrine.* (Trenton, ON: Canadian Forces Aerospace Warfare Centre, Feb 2011), 1, 5, 6, 49.

[43] *Ibid.*, 8, 26.

[44] *Ibid.*, 23, 31, 44.

[45] *Ibid.*, 14.

[46] *Ibid.*, 17.

While Canadian doctrine is not silent on the issues of efficiency and effectiveness, it does not describe a complete picture. Land doctrine identifies that the two elements exist in tension, and the role of the control function in achieving both efficiency and effectiveness targets. Both Land and Aerospace doctrine view efficiency in resource-centric terminology but fail to discuss how the interrelationship may influence planners at different levels of the organisation or vary environmentally.

Australian Doctrine

Australian doctrine identifies a wide range of factors which influence the efficiency and effectiveness relationship. It considers some differences across the different levels of war, and focuses on the operational environment. It discusses the tension between efficiency based and effectiveness based measures of supply chain (logistic) performance.

Australian doctrine considers the variance in efficiency at the Strategic and Operational levels. It describes Strategic level efficiency considerations in the balance of industry-based logistic support within the national support base (4th line). It also discusses that at the Operational level, effectiveness is the prime consideration.[47] One of the principles of logistic support at the Joint level is balance; the need to balance efficiency with effective support "in a battle space characterised by friction, uncertainty, fluidity, and disorder."[48] After these references to the tension inherent in efficiency and effectiveness based logistic systems as well as the need for balance, it continues to refer to efficiency and effectiveness together. The method of assessment of logistic plans is a

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[47] Australia. Department of Defence. *ADDP 4-0, Defence Logistics*. (Canberra, ACT: Defence Publishing Service, 2011), 1-14.

[48] *Ibid.*, 1-22.

combination of the principles of logistics as well as other criteria such as timeliness, relevance, accuracy, compliance, effectiveness, integration and efficiency.[49] The authors do not seek to describe how effectiveness can be both a descriptor of system performance and outcome. In a case of circular logic, this would indicate that to be effective, a plan must be effective.

The concept of tolerance of inefficiency in industry is considered. It argues that at the national level, sustainment of redundancy and reserve capacity is a priority. The logical extension is at the corporate or political level; the maintenance of industry partnerships may be a higher priority than efficiency targets.[50] This paper will discuss the issue of inefficiency and industry partnerships in later sections. Australian doctrine does attempt to address the tension between efficiency and effectiveness at the Strategic and Operational levels.

NATO Doctrine

NATO, as a multinational organisation, has a less ambiguous concept of efficiency and effectiveness. Resource-centric, its concept reflects the nature of NATO as a multinational Strategic-level organisation that interacts with nation states more than front-line troops. NATO doctrine states that its logistic and support concepts are based on "the need to maximise efficiency and cost effectiveness of logistic support."[51] It addresses the necessity of efficiency, and the fact that the major influence is cost effectiveness in NATO operations.

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[49] *Ibid.*, 7-17.

[50] *Ibid*.

[51] North Atlantic Treaty Organization. *AJP-4(A), Allied Joint Logistics Doctrine.* (Belgium: NATO Standardization Agency, December 2003), 1-1.

NATO doctrine considers the idea of effectiveness in relation to the cost effectiveness of plans or operations. Operational effectiveness is addressed briefly, with an underlying tone that effectiveness is mission-centric, that is the successful completion of military objectives. Synergy through multinationality is an essential element of effectiveness,[52] reflecting NATO's priorities. No effort is expended in the discussion of a relationship between efficiency and effectiveness in a concept where efficiency equals cost minimisation and effectiveness equals either the completion of the stated mission objectives or minimisation of resource usage.

NATO doctrine is perhaps the least ambiguous of the doctrines considered, reflecting the position of NATO as a Strategic-level multinational organisation. It is helpful however to view that there are two sides to effectiveness, that of operational effectiveness and cost effectiveness.

Summary of Military Doctrine

ABCA Joint doctrine, despite being written for use at the Operational to Strategic level, considers efficiency and effectiveness through a tactical lens. Efficiency is predominantly but not solely considered as a resource-centric idea. Effectiveness is described as it relates to the accomplishment of military objectives. Although UK, US and Australian doctrine addresses it in some measure, there is limited discussion of the tension between efficiency and effectiveness, and specifically how to harmonise these conflicting ideas. Australian doctrine enters into some discussion of the need for military planners to consider corporate level questions when conducting logistic planning, but this is insufficient to be considered true 'guidance'. NATO doctrine, however, is far less

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[52] *Ibid.,* 1-5.

ambiguous in that it considers the question of efficiency and effectiveness as purely one of resources. This focus on an efficiency concept so closely wedded to cost is unsurprising given its role as a Strategic organisation unfettered with the requirement for tactical thinking.

NATO doctrine considers the issue of differing goals in the measurement of effectiveness. All other doctrine views effectiveness as the completion of military objectives. NATO doctrine, on the other hand, holds a more commercial view that effectiveness could be the minimisation of resource cost, or the alignment of resource cost with national capacity. Australian doctrine identifies that the efficiency/ effectiveness balance shifts between the Strategic and Operational level. All of these doctrinal concepts remain rooted in the operational environment. As a training tool for military planners, they do not identify the difference between the operational and non-operational environment, nor the specific tension between commercial and military concepts that so profoundly influence governmental reviews of the military.

This short doctrinal study suggests that doctrine is an insufficient measure through which military planners should be socialised regarding the balance between efficiency and effectiveness. This is particularly important as they begin to engage with logistic challenges at the Strategic level in the operational environment, but also in the daily 'business of defence'. In a fitting remark, General Svechin is reported to have stated, "Military doctrine is military, and particularly, tactical philosophy."[53]

Efficiency and Effectiveness in Academic Literature

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[53] General A.A. Svechin, quoted in Tsouras, P., *The Greenhill Dictionary of Military Quotations*…, 154.

There is a common belief among military logisticians that because modern logistics comes from US Army efforts in World War Two, modern military logistic systems are best-practice. Authors such as Parlier[54] however discuss the significant impact of technologically advanced logistic systems that drive modern logistics. Military logistics therefore has something to learn from its commercial descendant.

The nature of military logistics

Military logistics is, by nature, different from commercial logistics. Logically, logistic systems are designed to produce outcomes in line with the goals of the organisation they service. Jones identifies two distinct types of logistic systems:[55] Seller organisations, whose purpose is to deliver a product to a customer, and buyer organisations, which consume goods with no saleable output. In order to maximise profit from each individual sale, logistic systems in seller organisations attempt to reduce production and distribution. Put simply, "the lower the costs, given the customer value proposition, the greater the ability of the business model to be a moneymaker."[56] The development of complex commercial logistic systems post WWII allowed businesses to distribute their goods to a mass market in previously unforeseen volumes. Culture and focus play a large part in this concept, seller organisations provide financial bonuses to those members who reduce costs or enhance income for the organisation. The clear link between production, expenses and profit allow the establishment of reliable performance metrics to quantify employee value to the organisation.

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[54] Greg Parlier, "Transforming U.S. Army Logistics: A Strategic "Supply Chain" Approach for Inventory Management," *The Land Warfare Papers, No. 54*, The Institute of Land Warfare, Arlington Virginia (September 2005), 64.

[55] James V. Jones, *Integrated Logistics Handbook*, 3rd Edition (New York, NY: SOLE Logistics Press, 2006), 1.6.

[56] Alan Thompson, *et al*., *Crafting and Executing Strategy…* 1880/22733.

Buyer organisations on the other hand, may have no profit maximisation motive. The success of these organisations is based on their ability to produce the organisational outcome for which they have an obligation to provide. Inside of this structure, the importance of 'profit' (which may simply be regarded as surplus) lies in its capacity for reinvestment. Jones identifies that the goals of a buyer organisation include improving supportability and support resources, as well as minimising the cost of ownership.[57] Buyer organisations may struggle to incentivise performance where there is no clear link between individual performance and increased profit or funding.

Moore and Antill describe the challenge of defence logistics in a post-cold war strategic environment and the need to move from a Just In Case (JIC) theory of logistics to a more Just In Time (JIT) approach. JIT logistics reduces stocking and warehousing costs through the development of a streamlined, responsive supply chain. In this approach, an organisation sources stock directly from third party suppliers, with minimal stock on hand in its own warehouses. In their mind, this opens up the application of commercial logistic theory to the military environment.[58] Their thesis is that the risks and benefits of this transition can be shared between government and industry. The question unaddressed in this theory however is: can this risk be truly shared?

Two competing sets of objectives exist within the Defence/Industry partnership. Defence's objective for logistics is the effective delivery of service to enable its combat

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[57] James V. Jones, *Integrated Logistics Handbook*… 1.6.

[58] D.A. Moore, and P.D. Antill, "Where Do We Go From Here? Past, Present and Future Logistics of the British Army", retrieved 1 Apr 2015, https://dspace.lib.cranfield.ac.uk/bitstream/1826/7519/1/Past,%20Present%20and%20Future%20Logistics.pdf, 1.

and other functions. In Defence circles, this is referred to as capability and is also described by Parlier as the readiness target.

The objective of industry in the defence industry partnership is the maximisation of value to shareholders. As a gross measure, this is often considered the maximisation of profit. As described by Parlier, profit and therefore industry's motivation to participate with defence is "maximized (sic)… where total revenues exceed total costs by the largest margin". [59] The functions of defence however are unique. Parlier writes that in Defence, "the challenge is one of aligning incentives for the logistic provider within a CLS [Contractor Logistic Support] contract so that both buyer and seller objectives can be met".[60] A common method of achieving efficiency in a high cost industry is the use of economy of scale. Considerations for national security often preclude defence industry from obtaining these efficiencies through interaction with foreign militaries.

Ergas and Thomson believe that the problem with improving efficiency within the ADF is that "…as both sole customer and shareholder, the government cannot allow Defence to fail…"[61] This would indicate that industry does not share the risk incurred by Defence if the government underwrites industry.

The paradox is that due to the requirement of industry to maximise value for shareholders, the lack of diversified client base, and traditionally slim profit margins on defence contracts and projects; industry cannot be truly relied upon to accept the burden of risk associated with a true defence industry partnership.

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[59] Greg Parlier, *Transforming U.S. Army Logistics*…., 61.

[60] *Ibid*.

[61] Henry Ergas, and Mark Thomson, "More Guns Without Less Butter: Improving Australian Defence Efficiency", *Agenda: A Journal of Policy Analysis and Reform*, ANU Press, Volume 18, Number 3, 2011.

Despite this, and in contrast to other writers, Commodore Bob Mark is a proponent of industry/defence partnerships. He writes that the UK MoD is to blame in that it does not construct its requirements appropriately, and goes on to endorse a defence procurement and sustainment model that emphasises the sharing of risk between the UK MoD and industry. While Mark solely uses examples of impressive risk-sharing arrangements within the Naval context, he attempts to apply his thesis outside of that single service. Mark also focuses on one element of efficiency – second line Naval sustainment activities which is not an accurate measure of efficiency across the breadth of the Defence organisation.

Even within this realm, however, Ergas and Thomson argue that an example of the challenge of industry/defence partnerships lies within Australia's naval shipbuilding strategy. They state that "governments themselves often pursue inefficient options to satisfy political imperatives",[62] and that the effective rate of assistance for this industry is in excess of 100 per cent. In this way, for both political and national security reasons, government cannot devolve Defence's risk to industry partnerships.

Secondly, the lack of failure criteria breeds a culture of inefficiency. Ergas and Thomson state, "Defence organizations have few reasons to strive for higher productivity".[63] Mark acknowledges challenges in risk sharing, writing, "Unintentional but unnecessary barriers to improvement are created when industry's chief interest is in the sale of repairables."[64] Mark Thomson, in his work for the Australian Strategic Policy

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[62] Henry Ergas, *More Guns Without Less Butter*...

[63] Ibid.,

[64] Commodore Bob Mark, "Defence Logistics–The Challenge of Effectiveness and Efficiency." *RUSI Defence Systems* 7, no. 2 (2004): 30-31., 31.

Institute (ASPI), writes that there are "principal-agent issues" driving inefficiency in the Defence supply chain.[65] If defence does not meet its objectives because it has used all of the resources allocated, the government is obligated to resolve the shortfall. Without a clearly measurable production outcome, it is difficult for government, or the organisation, to measure the success or failure of its strategy. Without a warlike environment where the practical outputs of capability are tested against an adversary, defence cannot truly establish the viability of its output.

In peacetime, Defence has used outsourcing as a means to achieve corporate-style efficiency targets. Moore and Antill refer to this as leveraging outsourcing to focus the organisation on its core business. It is essential therefore, that defence understand intrinsically the core elements of its business. Within Australia, the ADF has outsourced the distribution function so that its logistic troops remain largely unemployed within barracks – with the purpose of focusing on training for war. This should raise the question – is this truly efficient? Is having a significant resource (personnel) unused an efficient use of resources? If personnel are not practicing their skill-based job, is the organisation effectively developing skill and maintaining competence for future operational employment? Does it establish a culture and mindset of excellence within the organisation?

In an operational setting, the meaning of efficiency changes. Operational efficiency is about achieving the greatest effect with the minimum (or more accurately, available) resources. In addition, efficiency in the operational environment can allow better allocation of limited resources. Tuttle frames this tension as two objectives: the

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[65] Mark Thompson, *Defence Reform: The Australian Experience…*

"timely delivery of forces and sustainment to the combatant commanders and minimization of the logistics 'footprint' in the battle spaces."[66] In his book, Tuttle argues "*Effectiveness* of defense (sic) logistic processes must be paramount in ensuring the success of military operations, but their *efficient* employment is important because resources are limited."[67] Ergas writes, "Greater efficiency allows stronger defence within a given budget."[68] Employing resources efficiently enables a better distribution of what may be a limited commodity.

Thompson cites the Iran/Iraq war as an example that effectiveness is paramount in military operations. He states that even in peacetime, a country must hold war stocks to underpin their deterrence claims but outlines the temptation to use the drawdown of war stocks under the guise of efficiency as a path to monetary saving for government.[69] The continuing requirement for a 'peace dividend', in his view, undermines the capacity of the US military to react to large-scale conflict.

In 1976, Vice Admiral Weschler wrote to the US Principal Deputy Assistant Secretary of Defence regarding the principal challenge of defence logistics. In this letter, he wrote that Defence management in the non-operational environment focuses too much on achieving financial efficiency. The tension is that militaries must judge themselves not by fiscal efficiency, but by their effectiveness in war. He contends that "each adoption of

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[66] William G.T. Tuttle, *Defense Logistics for the 21st Century*, (Annapolis, MD: Naval Institute Press), ix.

[67] *Ibid.*, x.

[68] Henry Ergas, *More Guns Without Less Butter*...

[69] Julian Thompson, *The Lifeblood of War: Logistics in Armed Conflict*. (Washington DC: Potomac Books Incorporated, 1991), xv.

an 'efficient' improvement must include an analysis of its impact on 'combat effectiveness.'"[70] – and that planners cannot simply ignore identified gaps.

Tuttle describes logistics as information. Advances in technology have greatly enhanced the speed of knowledge transfer within logistic systems. This increased capacity for accurate, timely control, allows planners to understand both the requirement and capacity in far greater depth than ever before. With flexible, reactive systems, planners can react rapidly to information on system deviations or variability in order to adapt to changing scenarios. Modern technology has allowed commercial systems to streamline the information flow, allowing much greater situational awareness of the logistic process. Military processes, however, may be slower to catch on. Parlier emphasises this, writing that legacy logistic systems resident within military supply chains are unable to adapt to the new, more technologically enabled warzone. Complexity has outstripped the capacity of information systems to provide accurate information. Part of this issue is in the inability of the military to adapt new systems with the same speed that technology systems progress. Parlier believes that an "ingenuity gap may be developing",[71] characterised by an ever-increasing inability of the military machine to deal with this increasing complexity in systems and information.

Henderson argues that information dominance is as important in the military as in business. Rapid, accurate information systems allow planners to react to variability and

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[70] Vice Admiral Thomas R. Weschler, "Priorities and Emphases for Logistics", *Naval War College Review*, Summer 1976: 18.

[71] Greg Parlier, *Transforming U.S. Army Logistics*…, 64.

therefore reduce the requirement for redundancy[72]. In line with Parlier's thinking, Tuttle writes "The analogue in defense (sic) logistics is that the same kind of substitution of knowledge and disciplined management can streamline the distribution processes, also reducing inventory requirements and investment and improving customer wait time."[73] This theory is the same approach used by many external defence reviews. The report "Managing the Military More Efficiently" by Leatherman et al, complied a large number of recommendations for improving US military spending. By implementing commercial logistic efficiency techniques, the recommendations purport to save the US military nearly $1 trillion over a decade.[74]

Despite his support for commercial engagement in military efficiency, Tuttle writes, "The primary metric of defense (sic) logistics effectiveness must be how well those policies and processes support the strategy."[75] Luttwak goes further in his analysis. He argues that effectiveness is becoming subordinated to efficiency ideas, to the detriment of military capability. Luttwak writes that Defence funding priorities have been wrongly set, that "the obsessive attention devoted to micromanagement is the cause of an evil far greater than any marginal inefficiency or thievery".[76] He continues that reform of the system is so difficult because "Congress offers no rewards whatsoever for tactical or

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[72] LTCOL J. Henderson, *The Process of Military Distribution Management*, (Bloomington IN: Authorhouse, 2006), 3.

[73] William G.T. Tuttle, *Defense Logistics for the 21st Century…*, 11.

[74] M. Leatherman, B. Blechman, and R. Rumbaugh, *Managing the Military More Efficiently: Potential Savings Separate from Strategy*, (Stimson Press, May 2013), 3.

[75] William G.T. Tuttle, *Defense Logistics for the 21st Century…*, 3.

[76] Edward N. Luttwak, "The Price of Efficiency", *Military Logistics Forum*, July/August 1984, 22.

logistical innovation";[77] Defence practices a greater degree of risk aversion and redundancy than would be acceptable in a commercial environment.[78] Tuttle comes to similar conclusions about the reform challenge within defence, positing that government regulation is the primary restraint to true reform.[79] He writes, "At the same time, military and civilian leaders cannot ignore the resource and effectiveness costs of continuing practices long out of date."[80]

A significant gap exists in the military and commercial understanding of efficiency. In military operations, the need for effectiveness outweighs the need for efficiency. The nature of defence funding and governmental oversight however means that the military must successfully convince the government that effectiveness has become the primary goal.[81] An understanding of commercial theory, that efficiency is the minimal use of fiscal resources, flavours the government's view. This dilemma should be the genesis of a new concept of efficiency and effectiveness in the military – one that is sensitive to the context in which these conflicting ideas exist.

EFFICIENCY AND EFFECTIVENESS AND THE LEVELS OF WAR

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[77] *Ibid*.

[78] Similar views are expressed in U.S. Congress, Office of Technology Assessment. *Holding the Edge: Maintaining the Defense Technology Base, OTA-ISC-420* (Washington, DC: U.S. Government Printing Office, April 1989), http://ota.fas.org/reports/8920.pdf, 147; including the impact of technology and efficiency/effectiveness challenge.

[79] William G.T. Tuttle, *Defense Logistics for the 21st Century…*, 19.

[80] *Ibid*.

[81] Australian Government, "Towards Responsible Government", The Report of the National Commission of Audit Phase One, 14 February 2014, Commonwealth of Australia ACT, last accessed 14 Apr 15, http://www.ncoa.gov.au/report/phase-one/part-b/7-8-defence.html.

While the purpose of this paper is to provide indicators for a wider military audience, the vehicle being used for the discussion is that of the Australian Defence Force for its military examples. The ADF is a modest modern western military force, with regional capacity that engages in limited expeditionary operations. In addition, the ADF has a limited overseas footprint, and must transition between operational and non-operational environments with regularity.

In the ADF, the single services (Royal Australian Navy, Australian Army and Royal Australian Air Force) are involved in the two spheres of Okros' Business of Defence and Domestic and International Operations, with some input to the Machinery of Government domain – conducting the Raise, Train, Sustain (RTS) of military forces. When the ADF employs its forces in an operational environment, these forces are assigned under command of the Combined Joint Operational Command, a Strategic level joint headquarters.

The concept of the levels of war describes the layout of a military force in an operational setting. Developed within the Napoleonic Wars, and further refined during the Franco-Prussian Wars, the concept of the levels of war is used to describe a wide variety of military environments. Within the modern military lexicon, it is used to describe military structure in both operational and non-operational environments. Therefore, this paper will refer to the 'Strategic', 'Operational' and 'Tactical' levels when describing both operational and non-operational environments.

Efficiency and Effectiveness at the Tactical level

The Tactical level in efficiency and effectiveness is where actions have a direct impact on the outcome at the individual level. In a purely military sense, the Tactical

level includes "the employment and arrangement of forces in relation to each other,"[82] and is focused on planning and executing battles, rather than grand, or operational, strategy. It is differentiated by the limited local objectives and often short-duration strategies employed to achieve a set of localised results. The Tactical level can include the actions of units and up to Task Force level, where those objectives remain localised in their effect.

In defining the relationship of logistic activity to the Tactical level, Kress argues that it is where logistics "is used to affect the battle in progress."[83] It is also unique and contextual to the immediate situation. Both of these definitions confirm the idea that the output of the Tactical level must equate to a localised impact. Some Tactical level actions may be strategic in nature due to the impact of those actions, illustrating that the lines between the levels of war are not absolute. The supply of a repair part critical to an essential equipment fleet may be a tactical action, which has a strategic impact. In addition, much has been written on the nature of the 'strategic corporal', that the actions of tactical personnel may also have a strategic impact. In reviewing the overall drivers of efficiency and effectiveness, the concept of the Tactical level will remain aware of, but not focussed on, these other tactical/strategic relationships.

Mission success is the most important driver at the Tactical level. A review of the imperatives at the Tactical level will demonstrate that while effectiveness is on balance more critical at this level, it is not the sole focus. Activities at the Tactical level take many

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[82] United States. Department of Defense. *US JP-3.0, Doctrine for Joint Operations.* (Washington, DC: Chairman Joint Chiefs of Staff, 11 August 2011), I-14.

[83] Moshe Kress, *Operational Logistics: The Art and Science of Sustaining Military Operations*, (Boston, MA: Kluwer Academic Publishers, 2002), 26.

forms, and differ greatly if considered in the context of the Business of Defence or Domestic and International Operations.

No matter what the military would like to believe about itself, it is a public institution. As such, it is wholly subsidised in its actions by the taxpayer, through the government of the day. In addition, even Tactical level troops must consider themselves conducting the Business of Defence when not in an operational setting and therefore responsible for delivering value for public money. The ADF has had a differing relationship with the government of the day, and the associated level of trust. As the level of trust has risen, the ADF has been given freedom of action to make its decisions on how to spend its budget. Conversely at times that trust has been quite low, such as through 2011 with the ADF Skype Scandal[84] and grounding of the RAN's amphibious capability.[85] When trust in the ADF is low, scrutiny of ADF funding is at its tightest. While members of the ADF may feel that the close scrutiny of funding impedes the Business of Defence, one of the principal responsibilities of public sector organisations is to demonstrate value for money in the delivery of service.

In the tactical realm, this tightening of budget has meant that efficiency has become a far more important consideration. Efficiency actions at the Tactical level have multiple positive outcomes. Firstly, efficiency means greater financial transparency. Commanders are able to set solid targets and conduct high quality training where budgets are set realistically and honestly. Secondly, efficiency means that underused resources (financial, personnel or equipment) can be effectively redirected to organisational

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[84] David Shanahan, "Stephen Smith vs Angus Houston: the truth revealed", *The Australian*, 13 April 2013, last accessed 18 April 15, http://www.theaustralian.com.au/national-affairs/stephen-smith-vs-angus-houston-the-truth-revealed/story-fn59niix-1226038148844

[85] Mark Thomson, *Defence Reform…*, 3.

reinvestment, within appropriate business rules. Efficiency also encourages streamlining (reduction of redundancy) and the simplification of systems. In the non-operational environment, the outcomes of efficient thinking result in the most appropriate use of fiscal allocation. The Business of Defence is often characterised by long lead times and low individual risk. The defining features of the Tactical level are tangible, local outcomes, or the delivery of capability on a daily basis. In this environment, military planners must be aware of the benefits of efficiency methodologies while focusing on effective outcomes. Efficiency is an enabler for effectiveness.

In the operational environment (the sphere of Domestic and International Operations), the meaning of efficiency is somewhat nuanced. Rather than specifically fiscal, Doctrine describes that efficiency relates to the overall use of resources in support of the mission. The operational setting is not necessarily constrained by fiscal requirements. "The objective at the Tactical level is to minimise two gaps: the *quantity gap* and the *time gap.*"[86] When the decisions made in providing support to the Tactical level increase either the quantity or time gap, effectiveness is impacted. In an operational setting, if the desired effect or capability output is unavailable, the result may be mission failure or the loss of lives. In a non-operational environment, the risk to capability due to quantity or time gaps is an *unrealised capability gap.* The contrast of effect between the two environments is significant such as if a soldier does not have sufficient ammunition for his rifle. In this case, two scenarios exist. In the operational setting, a soldier without ammunition is unable to fulfil his primary role – to close with and kill the enemy. Either their life, or the life of others may be in danger as a result. In the non-operational

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[86] Moshe Kress, *Operational Logistics…* 28.

environment, the same soldier is also unable to carry out his primary role – training to close with and kill the enemy. In this second scenario, the result is an unrealised capability gap. While important, the impact is not life threatening and can be, if known, remediated at a later stage. The primary difference lies in the immediacy and impact of the gap. At the Tactical level, increasing threat raises the risk of variability. To reduce the risk of a quantity or time gap, planners must introduce a requirement for redundancy. At the Tactical level, efficiency must therefore provide *appropriate* resources at the critical point. Military planners, while being aware of efficiency, must wholly focus their effort on effectiveness in order to minimise likely gaps.

At the Tactical level, personnel must be aware of efficiency but focussed on effectiveness. The specific balance between efficiency and effectiveness, however, lies in the context. In the operational environment, effectiveness is the paramount consideration due to the immediacy and impact of any gap[87]. Plans include the likelihood of increased variability. The inclusion of redundancy by its nature is an inefficient but necessary method to mitigate risk. Even in this environment, where the need is neither immediate nor the impact significant, efficiency considerations can be factored in. As Brennan and Kelly write, "tactics needs to be constantly seeking to contribute to the ends laid down by strategy with economy, efficiency and nuance."[88]

Likewise, in the non-operational environment the efficiency/effectiveness balance should remain on the side of effectiveness. Rather than solely focusing on effectiveness however, efficiency becomes a greater factor. The sphere of the Business of Defence is

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[87] *Ibid.*, 42.

[88] Mike Brennan, James Kelly, *Alien*…, 6.

inherently lower risk and while an unrealised capability gap is important, it is likely not life threatening. At the Tactical level, efficiency is the appropriate allocation of resources, and effectiveness is the completion of assigned tasks.

Variability is the key between efficiency and effectiveness – efficiency based logistic systems focus on reducing the variability of the supply chain, to reduce duplication or extra work. As environmental risk increases, through enemy action, system failure, or other factors, variability increases. In order to counter risk, additional margin is added to cover the variance. In addition, the demand satisfaction requirement increases as the threat increases. If the enemy threat is high, satisfaction levels must also be high so what is requested by the system is delivered.

Efficiency enables success at the Tactical level in both operational and non-operational settings. At this level, efficiency is resource-centric rather than strictly fiscal. It is the completion of required tasks with the minimum resources. The Tactical level is the level which experiences the greatest risk of variability, which necessitates the inclusion of redundancy to offset the immediacy and impact of any gap. At the Tactical level, planners should aim for effectiveness, but remain mindful of the role of efficiency as an enabler. While effectiveness maintains its position as the most important consideration in non-operational environments, more scope is available for efficient methodologies due to a reduced immediacy and impact of quantity or time gaps. If unrealised (or realised) capability gaps result, however, planners should consider if the plan was actually efficient or simply inappropriate for the conditions. Efficiency-based planning at the Tactical level, regardless of the environment, should not result in a lack of effectiveness.

Efficiency and Effectiveness at the Operational level

It is at the Operational level of war that the balance between efficiency and effectiveness is at its most precarious. Decisions made at this level have the scope and influence to impact on both the strategic and Tactical levels. Balancing competing interests within the domains of the Business of Defence and Domestic and International Operations is the logistician's version of Operational Art.

A great body of literature discusses the specific nature of the Operational level of war. While it is not the place of this paper to discuss it at length, it will establish a baseline from which to formulate a concept of efficiency and effectiveness. US JP3-0 Doctrine for Joint Operations succinctly states that the Operational level "links the tactical employment of forces to national and military strategic objectives."[89] It states, "The focus at this level is on the design, planning, and execution of operations using *operational art.*"[90] As a bridge between the tactical, practical level of war, and the cognitive nature of the Strategic level, the Operational level can be divided into three facets: the cognitive, functional and practical.[91] In a cognitive sense it takes the abstract, intangible ideas and transposes them into concrete plans. Kress describes this as taking the macroscopic and transitioning it to the microscopic.[92] The functional facet comprises the actions required to conduct the larger campaign or strategy, particularly in directing, linking, coordinating or enabling individual tactical actions in support of the wider strategy. The practical facet is defined by Schneider as the distribution of assets across a

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[89] United States. *Doctrine for Joint Operations*…, I-13.

[90] *Ibid*.

[91] Moshe Kress, *Operational Logistics…*, 38.

[92] *Ibid.*, 39.

given area and time[93] in the theatre of operations. The Operational level is therefore more than simply the sinew that connects the tactical action to broad strategy – it is the thought, plans and resources that transform a strategic concept into coordinated physical actions.

The Operational level is characterised by the bridging elements described above. In generating the fusion required at the Operational level, military planners look up. Field Marshall Slim reflected that at the Operational level, commanders "must think 'big'."[94] Planners look up, to understand the strategic context of the Operational level plans that they are developing. Looking up straddles the cognitive and functional facets of the Operational level. The second element of fusion is looking down. Operational planners must be intimately aware of and responsive to the tactical reality. Without a detailed appreciation of the possible tactical outcomes of Operational level plans, a strategy cannot be devised. Looking down covers the functional and practical facets of the Operational level. In looking both up and down, the Operational level meets its principal tension. In looking up, planners at the Operational level are viewing an environment constrained and guided by efficiency. When looking down, planners regard an environment that is dominated by the need to be effective. The Operational level is therefore not simply a bridge in the sense of the cognitive, functional and practical facets, but a bridge between the competing interests of efficiency and effectiveness. Both of these elements must be considered and held in balance in order to achieve the requirements of both the strategic and Tactical levels.

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[93] James Joseph Schneider. *The Structure of Strategic Revolution: Total War and the Roots of the Soviet Warfare State*. (Novato, CA: Presidio Press, 1994), 51.

[94] William J. Slim, *Conduct of War*, (London, UK: The War Office, 1950), 22.

Jablonsky writes that the Operational level is also defined by a greater degree of time and space, when compared to the Tactical level.[95] A function of the Operational level is to fuse tactical actions over time, in order to create an overriding operational strategy. The Operational level therefore provides a greater period of time to plan and forecast for future actions over a widely distributed area and a greater capacity for prediction of variability. Planners at the Operational level therefore have a greater capacity to assess the risk of variability and can begin to develop plans based on efficiency rather than simply effectiveness. A greater degree of time and space may also mean a reduced immediacy and impact of gaps.[96] The Operational level is described through the four influences. Military planners look up to the Strategic level, yet they must understand and be sensitive to the requirement of the Tactical level. In addition, the Operational level has a greater degree of time and space, with its influence on the risk of variability and the immediacy and impact of gaps.

At the Operational level, planners must balance the often-competing requirements of efficiency and effectiveness. This balance will be influenced by the context, whether planning the Business of Defence or planning Domestic and International Operations. In the sphere of Domestic and International Operations, planners must ensure that efficiency does not impede effectiveness. Where a policy, decision or gap is likely to impact on effectiveness at the Tactical level, it is the Operational level that must intercede to either mitigate or remediate the impact. Planners at the Operational level may also include some degree of redundancy to mitigate the risk of gaps. It is essential for planners at the

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[95] David Jablonsky. *Strategy and the Operational level of War: Part I*. (Carlisle Barracks PA: Army War College, 1987), 71.

[96] Moshe Kress, *Operational Logistics*…, 28.

Operational level to understand the risks that are being imposed on the Tactical level. The nature of the Operational level lends itself to a greater capacity for foresight and protection against variability through the greater time and space.

In the Business of Defence, planners must ensure that effectiveness is achieved in the most efficient manner possible given the constraints of the environment. As described previously, the Business of Defence is characterised by lower risk of variability and reduced immediacy and impact of gaps. In this environment, it is possible to forecast with extended lead-times with reasonable accuracy. At this level, defence is able to enact commercial variability reduction strategies to increase efficiency. Within the context of the ADF, this level in the Business of Defence is defined by a lack of concrete output goals.

A failure to complete the coordinated 'tactical actions' of training may lead to the aforementioned unrealised capability gap. The risk of too heavy a focus on efficiency thinking at the Operational level is that an unrealised capability gap, when the military is called upon to enter the operational environment, remains a true capability gap. If such a gap manifests at this level, the impact on military effectiveness may be catastrophic due to an inability to direct, link, coordinate or enable individual tactical actions in support of the wider strategy.

The challenge in balancing efficiency and effectiveness lies in the stark contrast between the operational and non-operational environmental requirements. Whereas in the operational environment, military forces will conduct the majority of support functions, these have by and large been outsourced in the non-operational environment. For the ADF, this takes the form of the Defence Logistic Transformation Program, with Warehousing, Distribution and Maintenance functions being contracted to civil

industry[97]. The intent of these outsourcing programs[98] is to free up military resources for use in the operational environment where they are better suited or to focus on 'core' roles. This pattern of outsourcing reinforces the cognitive differentiation between 'effective military' and 'efficient contractors', and may contribute to a lack of efficiency mentality in the military.

Like at the Tactical level, efficiency at the Operational level is an enabler for effectiveness. Developing efficient but effective systems and processes ensures that the right resources are presented at the right location in the appropriate timeframe. While the focus remains on mission success, the lack of training of military personnel in efficiency methodologies may undermine the capacity of military planners to accurately identify the tipping point between efficiency and effectiveness for the environment.

At the Operational level of war, the balance between efficiency and effectiveness is at its most precarious. Defined by the need to look both up and down, with greater time and space, decisions have the scope and influence to impact on both the strategic and Tactical levels. In defining the fusion between the macroscopic and microscopic, planners must hold in tension the competing interests of the strategic (efficiency) and tactical (effectiveness) levels. While the blend differs in either the operational or non-operational environment, neither efficiency nor effectiveness should be regarded as paramount at the Operational level. Additionally, the tendency to outsource Operational level functions in the non-operational environment may contribute to a lack of experience in identifying the

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[97] Australian Government, "Defence Logistics Transformation Program (DLTP)," *Department of Defence*, last accessed 15 April 2015, http://www.defence.gov.au/jlc/dltp/.

[98] Christine Harland and Louise Knight, "Outsourcing: assessing the risks and benefits for organisations, sectors and nations", *International Journal of Operations & Production Management* Vol 25, No. 9, 2005: 831-850, 833.

tipping point of efficiency and effectiveness. At the Operational level, the meaning of efficiency and effectiveness is in transition between the resource-centric, mission focussed understanding of the Tactical level, and the more corporate perspective of the Strategic level.

Efficiency and Effectiveness at the Strategic level

The Strategic level is the point at which military thinking and strategy intersects with political will. The dynamics of civil-military relations, funding appropriation and political considerations have a significant impact on military plans and direction. It is at this level that military planners strive to establish effective plans and strategies while being driven by the overriding requirement for efficiency.

The Strategic level is the level at which the military contributes as an element of national power. Clausewitz both identifies the nature of strategic acts as political and regards the Strategic level as "the employment of the battle as the means towards the attainment of the [politically directed] object of the War."[99] Fraser writes that "the art of strategy is to determine the aim, which is or should be political: to derive from that aim a series of military objectives to be achieved."[100] In line with this idea, US JP3-0 states the Strategic level develops plans that employ "the instruments of national power in a synchronised and integrated fashion to achieve theatre, national, and/or multinational objectives."[101] At the Strategic level "decisions are taken that have long lasting impact…

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[99] Carl Clausewitz, *On War*, Ed., Rapport, A., (New York, NY: Penguin Books, 1982), 120, 241.

[100] David Fraser, *Alanbrooke*. (London, UK: A&C Black, 2011), 215.

[101] United States. *Doctrine for Joint Operations…,* I-13.

and long-range economic implications."[102] The paradox of the Strategic level, when considered in terms of the subordination of the military to civilian control is that military planners are responsible for creating plans that align long-term military strategy with possibly short-term political direction. This planning is also constrained by budget and the requirement to demonstrate good governance for the use of public funds. In this way, the Strategic level plays an important role in the control and direction of military forces to ensure compliance with political will.

At this level, military planners operate in the domain of the Machinery of Government or the Business of Defence. The plans that are developed are overwhelmingly conceptual, even when focused on the conduct of military operations. The environment is relatively stable; free from localised or Tactical level variability. The available options however can be multidimensional and complex,[103] reflecting the disparate nature of organisational influences. In addition, the risk of time or quantity gaps is reduced by the availability of greater time and space for action.

The Strategic level is the level at which political ideas become strategic direction.[104] Kress remarks that "a major consideration that affects the decision making process at the Strategic level is efficiency, which is a measure that takes into account the economic cost of effectiveness."[105] The key drivers at the Strategic level are the political environment, economics, maintenance and development of the organisation, and the internal environment.

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[102] Moshe Kress, *Operational Logistics*…,19.

[103] *Ibid.*, 27.

[104] David Jablonsky, *Strategy and the Operational level of War: Part 1…*, 73.

[105] Moshe Kress, *Operational Logistics*…, 24.

A number of reviews of the ADF have been established to study the question of efficiency and effectiveness, predominantly at the Strategic level of the organisation. While most regard the ADF as an effective organisation (able to complete to a high standard the tasks required of it by government), a general consensus across these reviews exists that "the current organisational model and processes are complicated, slow and inefficient in an environment that requires simplicity, greater agility and timely delivery."[106]

The study of public administration and theories of civil-military control seek to understand the expectation that democratic governments have of the military. In a military setting, the Strategic level is required to sustain the organisation into the future, often having to forecast what that future might look like. Political direction, on the other hand, may be focussed on a shorter timeframe, measured in the length of election cycles.

As a public sector organisation, "defence is financed through public funds or, we might say, through the taxation of individual citizens."[107] It is also a public sector organisation with one of the largest allocations of funding, resulting in close scrutiny of its allocation of funding to capability. Six percent of the total Australian budget in 2013 was spent by the Department of Defence, a significant amount for one department.[108] "Here, the principles of good governance, as well as good management, apply [as] financial resourcing in defence is about the proper use of public funding."[109]

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[106] Australian Government, *First Principles Review: Creating One Defence*…, 13.

[107] Laura Cleary and Teri McConville, eds. *Managing Defence in a Democracy*, (New York, NY: Routledge, 2006), 112.

[108] Australian Government, *Towards Responsible Government…*

[109] Laura Cleary and Teri McConville, eds. *Managing Defence In A Democracy…*, 112.

The result of efficiency at the Strategic level therefore impacts both internal and external to the organisation. Internally, planners are often required to balance the competing requirements of personnel, equipment, sustainment, training and maintenance to generate capability outputs. At this level, efficiency can drive organisational reinvestment. If defence moves to a more financially efficient method of maintaining its equipment fleet, it is able (within the constraints of departmental policy) to reinvest those funds into another area such as training. In theory, efficient methods are less complex, and therefore more transparent. The principle of streamlining is to generate efficiency through a reduction in complex processes involved in an activity. According to the First Principles Review team, reduction in complexity would assist the ADF in regaining its agility and capacity for timely delivery.[110] In addition to these internal benefits, efficient use of funds demonstrates good governance and value for taxpayer's money external to the organisation. If Defence spending is more transparent, it is less likely to suffer from uninformed budget cuts.

Efficiency is a major consideration in decision making at the Strategic level. Military planners need to make recommendations relevant to the current political direction, but mindful of future requirements. This is most apparent in capability development – where there is a direct clash between what is desired to fit the future capability requirement and what is affordable within the allocated budget. As the NCOA report states, "strategy discussions can pre-ordain future funding"[111] in that decisions are made about future force with a much longer lead-time than the current budgetary cycle.

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[110] Australian Government, *First Principles Review: Creating One Defence*…, 13.

[111] Australian Government, *Towards Responsible Government*…

At the Strategic level, efficiency is a principal consideration. Military planners should be mindful of the impact of efficiency on the effectiveness of its capability output. Therefore it is at this level that trade-offs are best considered. The trade-off between two options, in this case efficiency and effectiveness, is based on the relative merit in relation to utility and cost.[112] Jablonsky writes of the Strategic level "there may be times, of course, when strategic demands dictate an operational mission without full resourcing."[113] Military planners should consider the requirements of the political and security environment as well as the current and future force requirements in order to understand when trade-offs are appropriate, or if they will have a significant impact on capability outputs. In calculating trade-offs, military planners aim for the "best possible use of existing resources *within the constraints of the current system design and business practices."*[114] At this level of the organisation, within the Machinery of Government, military planners are able to consider public sector, or commercial sector strategies for reducing variability and streamlining processes. Similarly to the Operational level, a common method of reducing variability and streamlining Defence processes is through the use of contractors in place of 'more expensive' military personnel. In doing this however, planners must be cognisant of the possible losses that may occur with the removal of daily function (through outsourcing) at the lowest level. Tasks that are identified for streamlining and possible outsourcing to a third party contractor or public servant may provide value to the organisation beyond simply the mechanics of completing the task, including retention, training, experience or other intangible benefits.

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[112] Moshe Kress, *Operational Logistics*…, 24.

[113] David Jablonsky, *Strategy and the Operational level of War: Part 1…*, 74.

[114] Greg Parlier, *Transforming U.S. Army Logistics*…, 42.

Harland and Knight discuss the prevalence of poor management of outsourced functions,[115] and the risk to skills where outsourcing impinges on close-to-core functions.[116] Effective outsourcing requires that the organisation adapt its management structures and practices to ensure clear lines of responsibility for outsourced functions. In the Defence sector, civilian workers replace military personnel. Outsourcing strategies must contain anticipatory integration strategies to harmonise cultural differences and service expectations. Outsourcing functions within the Machinery of Government domain may also reduce the exposure of military planners to political direction, reducing the capacity of senior planners to translate political direction into military strategy.

In the operational environment, the Strategic level remains heavily weighted towards measures of efficiency. Despite the fact that the organisation may be at war, public sector administration still requires that defence provide value for taxpayer money. Reduction of inefficiency in the operational setting is possible due to the long spans of time being considered. This also carries an inherent risk that unforeseen strategic events may create significant gaps that efficiency methodologies are unable to provide redundancy for. This weighting toward efficiency does not preclude the requirement to be cognisant of effective capability outcomes. To a degree, efficiency is an integral part of effectiveness at the Strategic level. If budgetary spending does not generate the appropriate capability outcomes, it cannot be an efficient use of funds. At the Strategic

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[115] Christine Harland and Louise Knight, "Outsourcing: assessing the risks and benefits… 836. Harland and Knight view public sector outsourcing as particularly fraught, as public sector outsourcing "reduces government control of critically important sectors" (842). In Defence, the tendency is to outsource functions in the non-operational environment that the military must still complete in the operational environment.

[116] Ibid., 841.

level, a robust process must exist to confirm that defence spending meets the output required.

A counterpoint to the view that efficiency is the primary discriminator at the Strategic level is that in some cases, neither efficiency nor effectiveness is the deciding factor. As Ergas et al describe, governments may pursue inefficient options for political purposes[117] such as the development of indigenous industry or other such nationalistic goals. Military planners should remain mindful, but not driven by an understanding of these political imperatives. These events remain political, rather than military decisions and are not a significant factor in the efficiency/effectiveness discussion. In addition, during the deployment phase of an operation, Strategic level planners may consider the acceptance of inefficiency appropriate. Again, this is not a permanent or typological condition, as it must transition rapidly to efficient methodologies.

The Strategic level is the point at which military thinking and strategy intersects with political will. At this level, efficiency and value for money are the most important factors in the decision making process across Okros' domains of the Machinery of Government and the Business of Defence. Defined by its relative stability, efficiency at the Strategic level impacts internally and externally to the organisation. As Ergas et al contend, at the Strategic level "greater efficiency allows stronger defence within a given budget."[118] In defining the meaning of effectiveness at the Strategic level, defence cannot be effective if it is not efficient in its use of public funds. The Strategic level suffuses both efficiency and effectiveness with fiscal imperatives, driving their meaning closest to the

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[117] Henry Ergas, and Mark Thomson, *More Guns Without Less Butter…*

[118] *Ibid.*

corporate ideal. This remains contextual, with the operational environment less influenced by fiscal meanings than the non-operational environment, which often feels the spotlight of corporate-minded defence efficiency reviews.

BALANCING EFFICIENCY AND EFFECTIVENESS

The Okros model describes the relationship of the functions conducted by members of the military. In describing the functions at the Strategic, Operational and Tactical levels, it is clear that differences in the level and environment dictate separate placement in the Okros model. In a broad sense, all three levels of war tend towards effectiveness considerations in the operational environment. Likewise, placement of the same levels in a non-operational environment provides greater freedom for efficiency.

Efficiency and effectiveness must remain in balance. The specific weighting of each element is dependent on the level and operational or non-operational role. As has been discussed, tactical considerations will necessarily be weighted towards effectiveness, operational considerations hold both in tension, and strategic considerations will be weighted towards efficiency. Efficiency enables success at all levels of the organisation, across all three domains and in both the operational and non-operational settings but obtains primacy as work functions move further into the domain of the Machinery of Government.

As previously identified, the purpose of this paper is to understand the relationship between efficiency and effectiveness across the Strategic, Operational and Tactical levels. The placement, in broad terms, is shown at Figure 2. The chart makes a distinction between each level (Strategic, Operational and Tactical) based on their operational or non-operational environment.

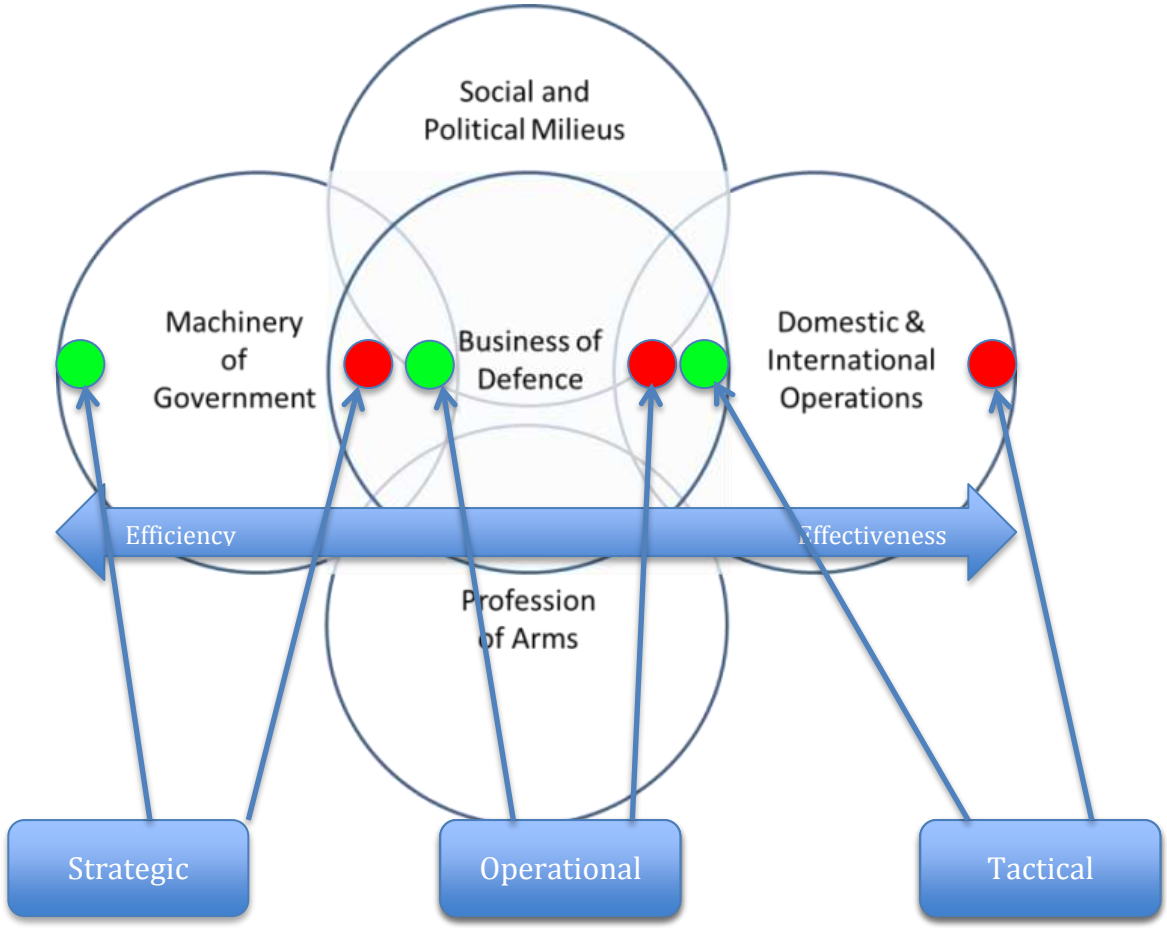

Figure 2: Adapted Okros Conceptual Model[119] where *red* indicates operational roles and *green* indicates in-barracks (raise, train, sustain) roles.

At the Tactical level, planners are focused on the battle at hand. The immediacy and impact of the environment define the role of efficiency and effectiveness at this level. In the non-operational environment, immediacy may be high but the impact is not catastrophic if the tactical objective is not achieved. Tactical level considerations in the non-operational environment tend towards a blend of the Business of Defence and Domestic and International Operations domains. Effectiveness is the priority at this level,

[119] Dr. Alan Okros, *Developing Fully Effective…*

however military conduct in barracks is constrained by the budgetary process. In the operational environment, the Tactical level is exposed to the highest degree of military risk and environmental variability. Weather, enemy and other factors combine to require the highest degree of redundancy to support tactical actions. In this environment, effectiveness is the priority and efficiency an enabler. The definition of efficiency at this level is weighted heavily towards resources rather than finance. While budgets may be a consideration at the Operational level, Tactical level personnel are rarely asked to question the budgetary impact of an airstrike or missile launch. This freedom from efficiency thinking allows personnel to focus on the task at hand.

Personnel operating at the Operational level, in both the operational and non-operational environment, are primarily engaged in the domain of the Business of Defence. As the fusion element between the Strategic level and tactical action, they are engaged in a constant balance between efficiency and effectiveness. A number of studies have been conducted to provide a mathematical formulation to efficiency and effectiveness in Operational level sustainment systems.[120] At the conceptual level however, these two elements represent a contextual trade-off. For this reason, efficiency and effectiveness at the Operational level represents a middle ground on the Okros model. A defining feature of the Operational level is the dimension of time and space. Greater time and space, combined with complementary planning tools such as forecasting, allows planners to draw upon efficiency methodologies in pursuit of effective outcomes. In the non-operational environment, the lower risk of variability allows the balance to swing more

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[120] Moshe Kress, *Operational Logistics*…, S. Sebbah, A. Ghanmi and A. Boukhtouta, "Design of Tactical Support Strategies in Military Logistics: Trade-offs Between Efficiency and Effectiveness", *Defence R&D Canada Centre for Operational Research and Analysis*, December 2011.

towards efficiency. In this environment, the Operational level concerns itself more with the domain of the Machinery of Government. In the non-operational environment, efficiency is measured by financial outcomes.

In the operational environment, the same tension exists. Neither efficiency nor effectiveness is the prime consideration. In this environment, military risk suffuses efficiency with a non-financial meaning. When personnel develop operational plans at this level, the military output must be considered more closely. The resourcing implications are an important aspect – efficiency in the operational environment enables combat action. Efficient resourcing allows the correct amount of resource to be provided at the correct time, with minimal waste. Reduction of waste enables excess resources to be diverted elsewhere. At this level, however, redundancy must be considered to account for variability in the environment. The focus of the Operational level in an operational environment is on the domain of Domestic and International Operations, inhabiting the space in-between it and the Business of Defence.

Military planners at the Strategic level are involved in the domain of the Machinery of Government. Their primary consideration, given the responsibility for good governance and value for public money, is efficiency. Illustrated clearly in the non-operational environment, a great deal of emphasis is placed on the ability of Strategic level personnel to develop strategies that align political direction with departmental funding. In graphically depicting this relationship, Strategic level planners reside on the far left of the efficiency/effectiveness scale, wholly in the domain of the Machinery of Government. Specifically, in the non-operational environment, efficiency is the appropriate use of financial resources to achieve the required capability output.

Strategic level planners in the operational environment consider a number of other factors. In this environment, political military direction for the conduct of warfare intersects with military risk where the consequence may be loss of life. The modern Australian experience shows that a political imperative in warfare is the reduction of personnel casualties and the maintenance of government strategic messaging. Gartner considers that this is neither a modern nor solely Australian phenomenon. In his study of US public opinion across the 20th Century, he writes, "Increasing casualties lead to both decreased national support and individual approval of war and its leaders."[121] In the operational environment, efficiency takes a more broad resource-centric view. Rather than simply considering the financial implications, it must balance a holistic view of the use of resources against the degree of military risk in order to ensure continued political and public support. In the operational environment, the function of the Strategic level moves towards the domain of the Business of Defence. It must consider and implement military risk reduction strategies, which are normally the purview of the Operational level but have strategic and political implications.

The survey of military doctrine shows that military focus is set on predominantly operational and Tactical level considerations in the domain of Domestic and International Operations. It fails to provide a framework for understanding resourcing and efficiency considerations in the non-operational environment. It can be argued that doctrine is not written with a non-operational environment in mind, and this argument has merit. The question that arises out of this argument however is: if doctrine is the vehicle through

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[121] Scott Sigmund Gartner, "The multiple effects of casualties on public support for war: An experimental approach." *American Political Science Review* 102, no. 01 (2008): 95-106, 95.

which military professionals are trained in the tools of their trade, through what process do they learn the requirements of the non-operational environment?

The thesis of the Okros conceptual model is that the military is primarily focused on the operational functions. Military training develops Commanders who understand the operational environment, reinforced by extensive experience in recent conflicts. The same cannot be said of the effort invested in developing understanding of the tension between operational and non-operational functions of defence. When mapped on the Okros conceptual model, the different levels of the military have a varying relationship to the tension of efficiency and effectiveness based on both the level of war and operational or non-operational environment. In the non-operational environment, military planners must have a deep understanding of the requirement and relevance of efficiency methodologies in military planning. If these methods are taught at the Tactical level, they can be exercised and developed throughout planners' careers, which will result in familiarity in balancing efficiency and effectiveness.

Doctrine is the basis for military training. As has been discussed, doctrine does not accurately identify the tension between efficiency and effectiveness. It does not provide the tools to assess the appropriate trade-off at each level of war. Doctrine should more accurately reflect the variety of roles experienced by military planners in their careers. It may be argued that Doctrine is intended to relate to the operational environment. If this is the purpose of Doctrine, military planners require some other forum through which they can be educated on the appropriate introduction of efficiency methodologies. In an environment where efficiency is more important, due to a low need for variability, military planners are ill equipped to handle the process of efficiency-based system design. Education, rather than training, is required to allow military personnel to identify

appropriate trade-offs. Cleary et al write, "Effective managers require skill and specialist (management) knowledge if they are to do their job well, if true value for money is to be achieved, and if all components of the defence sector are to be fit for their purpose."[122] Given the consistent reduction in defence expenditure and the increasing need for internal reinvestment, an increase in military thinking about efficiency is a significant opportunity to improve capability outcomes.

There are many ways to improve the Defence organisation. As LTCOL Piggee writes, "Our logistics system must be able to anticipate problems before they occur. Technology can enable accurate predictability."[123] Technology has a place to enable the reduction of variability, but it is not a panacea. The nature of threat means that military planners must continue to balance streamlining and other variability reduction measures against risk to ensure effective outcomes are achieved.

The writing of this paper has raised a number of questions that warrant further assessment. The intent of this paper is to provide a broad overview of the topic, and is therefore lacking in substantive data. A survey-based analysis of perception of function versus analysis of function may provide a means to conduct a sociological study into the role of military planners across the levels of the military organisation. The purpose of this study would be to confirm in a systematic fashion what domains military planners work in. Further study could also be conducted into the role of information systems in reducing system variability. A thematic study could be conducted into the philosophy of defence reviews and the specific methodologies used – whether or not a public administration

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[122] Laura Cleary and Teri McConville, *Managing Defence In A Democracy*…, 122.

[123] LTCOL Aundre F. Piggee, *Transformation-revolution in military logistics*. (Carlisle Barracks PA: Army War College, 2002), 16.

methodology would be more appropriate. An area identified but not covered by this paper was the role of civil-military control in the development of departmental strategy. Finally, this paper raised questions about the impact of outsourcing on operational readiness and training, which could be an avenue of further discussion.

CONCLUSION

Efficiency and effectiveness are concepts, which, in the military context, are nuanced and varied. In recent years, the Australian Defence Force has faced increasing frequency of government reviews into efficiency and effectiveness. External consultants, who have understandably focused on definitions that are taken from commercial business practices, have conducted the majority of these reviews. What they may have failed to consider is the complexity of defence management; the daily tension between these two ideas, which military planners must hold in balance. Likewise, the military is also responsible for the severity and frequency of reviews. Cleary writes, "There has been a tendency to assume that, because military commanders are practised in the arts of leadership, then they must also be good managers. History has shown us repeatedly that that is not so."[124]

While the terms efficiency and effectiveness have clear definitions in corporate literature, they hold variable, contextual meaning across the levels of the military. The purpose of this paper was to evaluate the importance and impact of efficiency and effectiveness in the pursuit of military outcomes across the levels of the Australian Defence Force in both operational and non-operational environments. The first indicator is of this is military doctrine which, as the primary method of socialisation and training of

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[124] *Ibid*.

military planning staff, differs from country to country. This is despite the nations surveyed investing significant resources in interoperability and sharing a common language. US, UK and Australian doctrine all identify that tension exists between efficiency and effectiveness, but none propose a way for military planners to harmonise competing requirements. NATO doctrine holds a more fiscal, and therefore corporate, perspective of efficiency and effectiveness but likewise provides little advice to military staff. None of the doctrinal sources surveyed sought to highlight differences between operational and non-operational environments, expressly focusing on the operational aspects. For this reason, doctrine is an insufficient measure through which military planners should achieve an understanding of the appropriate balance between efficiency and effectiveness in the operational and non-operational environments.

Academic literature on the subject of efficiency and effectiveness in the military is wide but not deep. The majority focuses either on the review and analysis of political or Strategic level efficiency considerations in non-operational environments, or Tactical and Operational level studies of effectiveness in the operational environment. There has been to this point little written fusing these concepts together to generate a broad understanding of the shifting balance of efficiency and effectiveness across the military organisation. Academic literature tends to agree that military planners must accept a degree of redundancy or inefficiency with writers such as Luttwak and Weschler holding the view that efficiency methodology directly undermines national security.

In bringing the military and academic perspectives together, this paper used the vehicle of the Levels of War to identify the broadly distinguishable levels of military structure, and Okros' Conceptual Model to describe the functions of military planners. Through this process this paper has identified that in a military context, the higher the risk

of variability (through military or non-military means), the greater the need for effectiveness. The lower the risk or threat, the greater the freedom for efficiency-based plans. Across all of these levels, a high quality flow of information allows planners to rapidly adapt to variability and generate effective outcomes through the efficient use of resources.

The Tactical level is the level at which military capability is delivered. A significant variance exists between the functions and variability inherent in operational and non-operational environments. Effectiveness is paramount at this level, particularly in the operational environment where the immediacy and impact of quantity or time gaps is at its maximum. This does not mean that efficiency is irrelevant – efficiency is an enabler at the Tactical level, allowing organisational reinvestment. At this level, efficiency has a holistic, resource-oriented meaning and is the completion of tasks with the minimum resources.

The Operational level is the fusion between the political influences and the individual actions at the Tactical level. Decisions regarding efficiency and effectiveness can influence both the Strategic and Tactical levels, and an inappropriate balance can lead to crisis at both. Planners at the Operational level must be able to identify the appropriate trade-off where neither efficiency nor effectiveness has absolute primacy. At this level, the meaning of efficiency and effectiveness is fluid; between the resource-centric mission-focussed understanding of the Tactical level, and the more corporate perspective of the Strategic level.

The Strategic level, as the military interface with politics in the non-operational domain of the Machinery of Government, is heavily weighted towards corporate-style efficiency. In the operational environment, effectiveness becomes a greater consideration

but efficiency retains its primacy. At this level, efficiency is purely fiscal; effectiveness is measured by the capacity of the Strategic level to produce the required outcomes within the fiscal limits required by government.

Military training develops Commanders who understand the operational environment. As stewards of public money however, military planners have an obligation to provide the best value for money within the constraints of the military environment. To achieve this, they require education and training that supports appropriate decision making as they transition across the levels of war. More than this, military planners must also understand the variance in the drivers of efficiency and effectiveness in both operational and non-operational environments. Military personnel are capable of developing effective logistic systems. Greater education in efficiency-based methodologies will allow military personnel to be better stewards of its budget and make the cognitive transition between effectiveness and efficiency. While corporate-style education on fiscal management and business practices is useful for military professionals, it does not provide a complete picture. Military professionals, particularly managers, require a fusion of business and public sector management education across all trade skills that looks further abroad than military doctrine. Armed with this, military professionals may be better placed to respond to the First Principles Review's confusion[125] about Defence's ability to reform itself.

This paper sought to resolve the question of efficiency and effectiveness – military myth or necessity. Without a doubt, efficiency and effectiveness are both equally critical to the function and success of the military. As described by Werschler, efficiency should

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[125] Australian Government, *First Principles Review…*, 13.

not impede effectiveness; likewise, Air Chief Marshall's 2012 words that Defence must maximum value from departmental funding is essential. Military planners must understand and manage an appropriate balance between the two, and the variable nature of their definitions at the Strategic, Operational and Tactical levels in the operational and non-operational environments. Only with robust education about, and awareness of, this variability can Defence make military sound decisions which provide value for money for the Public's investment.

BIBLIOGRAPHY

ABC News. "Defence Cuts 'tough yet manageable'", *ABC News online*, last modified 3 May 2012, http://www.abc.net.au/news/2012-05-04/defence-fraternity-questions-military-spending-cuts/3989888.

Australian Government. "Defence Budget Overview". Canberra ACT: Parliament Library, last accessed 24 April 15, http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/BudgetReview201314/DefenceBudget.

Australian Government. *First Principles Review: Creating One Defence*. Canberra ACT: April 2015.

Australian Government, Department of Defence. *Defence Logistics Transformation Program (DLTP)*, retrieved 15 Apr 15, http://www.defence.gov.au/jlc/dltp/.

Australian Government. "Towards Responsible Government", *The Report of the National Commission of Audit Phase One, 14 February 2014*, Commonwealth of Australia ACT, retrieved 14 April 15, http://www.ncoa.gov.au/report/phase-one/part-b/7-8-defence.html.

Australian Government, Department of Defence. *Defence Annual Report 2013-2014, Volume One Performance, governance and accountability*, last accessed 27 April 2015, http://www.defence.gov.au/annualreports/13-14/DAR_1314_V1.pdf

Australian Government, Department of Defence. *ADDP 4-0, Defence Logistics*. Canberra, ACT: Defence Publishing Service, 2011

Australian Government, Department of Defence. *First Principles Review: Creating One Defence*. Canberra ACT: 2015, last accessed 1 Apr 15, http://www.defence.gov.au/publications/reviews/firstprinciples/Docs/FirstPrinciplesReviewB.pdf

Australian Government, Department of Defence. *Strategic Reform Program: Delivering Force 2030*. Canberra, ACT: 2009.

Canada. Department of National Defence. B-GL-300-004/FP-001, *Sustainment of Land Operations*. Kingston, ON: Chief of the Land Staff, Dec 2010

Canada. Department of National Defence. *B-GA-406-000/FP-001, Canadian Forces Aerospace Sustain Doctrine.* Trenton, ON: Canadian Forces Aerospace Warfare Centre, Feb 2011.

Cleary, Laura R., and McConville, Teri, eds. *Managing Defence in a Democracy*. New York NY: Routledge Military Publishing, 2006.

Clausewitz, Carl. *On War*, Edited by Anatol Rapport, translated by Col J.J. Graham. New York, NY: Penguin Books, 1982.

Ergas, Henry, and Mark Thomson. "More guns without less butter: improving Australian defence efficiency." *Agenda* 18, no. 3 (2011).

Ergas, Henry. "Australia's defence: A review of the 'reviews'." (2012), http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1125&context=smartpapers.

Fraser, David. *Alanbrooke*. London, UK: A&C Black, 2011.

Gartner, Scott Sigmund. "The multiple effects of casualties on public support for war: An experimental approach." *American Political Science Review* 102, no. 01 (2008): 95-106.

Harland, Christine and Knight, Louise, "Outsourcing: assessing the risks and benefits for organisations, sectors and nations", *International Journal of Operations & Production Management* Vol 25, No. 9, 2005: 831-850.

Henderson, J. LTCOL. *The Process of Military Distribution Management*. Bloomington, IN: Authorhouse, 2006.

Horn, Bernd, and Stephen John Harris, eds. *Generalship and the Art of the Admiral: Perspectives on Canadian Senior Military Leadership*. St Catharines, ON: Vanwell Publishing, 2001.

Jablonsky, David. *Strategy and the Operational Level of War: Part I*. Carlisle Barracks PA: Army War College, 1987.

Jablonsky, David. *Strategy and the Operational Level of War: Part II*. Carlisle Barracks PA: Army War College, 1987. http://www.dtic.mil/cgi-bin/GetTRDoc?Location=U2&doc=GetTRDoc.pdf&AD=ADA516157.

Kane, Thomas M., *Military Logistics and Strategic Performance*. Portland, OR: Frank Cass Publishers, 2001.

Kelly, Brigadier Justin, Brennan, and James, Michael. *Alien: how operational art devoured strategy*. Strategic Studies Institute, 2009, http://www.strategicstudiesinstitute.army.mil/pdffiles/pub939.pdf.

Kerin, John. "Budget Cuts to go deeper in defence", *Australian Financial Review online*, last modified 3 May 2012, http://www.afr.com/news/policy/defence/budget-cuts-to-go-deeper-in-defence-20120508-j2y1i

Kerin, John. "Defence proves easy budget target", *Australian Financial Review online*, last modified 4 May 2012, http://afr.com/p/national/defence_proves_easy_budget_target_0Bi7uiRHnUQkD7WHhg6g6K

Kress, Moshe, *Operational Logistics: The Art and Science of Sustaining Military Operations*. Boston MA: Kluwer Academic Publishers, 2002.

Lai, Kee-hung, and TC Edwin Cheng. *Just-in-time logistics*. Burlington, VT: Gower Publishing, Ltd., 2009.

Leatherman, M., Blechman, B., and Rumbaugh, R. "Managing the Military More Efficiently: Potential Savings Separate from Strategy", Washington DC: Stimson Press, May 2013.

Luttwak, Edward N. "Why we need more waste, fraud and mismanagement in the Pentagon." *Survival* 24, no. 3 (1982): 117-130.

Luttwak, Edward N. "The Price of Efficiency", *Military Logistics Forum,* July/August 1984,

Mark, Commodore Bob. "Defence Logistics–The Challenge of Effectiveness and Efficiency." *RUSI Defence Systems* 7, no. 2 (2004): 30-31.

Moore, David M., and Antill, Peter D. "Where do we go from here? Past present and future logistics of the British Army." (2000), available at https://dspace.lib.cranfield.ac.uk/bitstream/1826/7519/1/Past,%20Present%20and%20Future%20Logistics.pdf.

Okros, Dr. Alan. "Developing Fully Effective General/Flag Officers and their Staff, Officer Developmental Period 4/5". *Project Strategic Leader*, April 2014.

Parlier, Greg. "Transforming U.S. Army Logistics: A Strategic "Supply Chain" Approach for Inventory Management," *The Land Warfare Papers, No. 54*, The Institute of Land Warfare, Arlington Virginia, September 2005.

Piggee, LTCOL Aundre F. *Transformation-revolution in military logistics*. Carlisle Barracks PA: Army War College, 2002, 16.

Robeson, James F. *Logistics Handbook*. New York, NY: Simon and Schuster, 1994.

Schneider, James Joseph. *The Structure of Strategic Revolution: Total War and the Roots of the Soviet Warfare State*. Novato, CA: Presidio Press, 1994.

Sebbah, S., Ghanmi, A., Boukhtouta, A. "Design of Tactical Support Strategies in Military Logistics: Trade-offs Between Efficiency and Effectiveness", Defence R&D Canada Centre for Operational Research and Analysis, December 2011.

Shanahan, Dennis. "Stephen Smith vs Angus Houston: the truth revealed", *The Australian online*, 13 April 2013, http://www.theaustralian.com.au/national-affairs/stephen-smith-vs-angus-houston-the-truth-revealed/story-fn59niix-1226038148844.

Shephard, Allan. "The Defence Commercial Support Program: Saving $200 Million a Year for Defence Procurement?" Canberra ACT: Department of the Parliamentary Library, 1993, retrieved 14 Aug 15, https://www.aph.gov.au/binaries/library/pubs/rp/1993/93rp02.pdf

Slim, W. J. *Conduct of War*. London UK: The War Office, 1950.

Thompson, Arthur, *et al.*, *Crafting and Executing Strategy: The Quest for Competitive Advantage*, 19th Edition (London, UK: McGraw-Hill Education (ebook)), 1880/22733.

Thompson, Julian. *The Lifeblood of War: Logistics in Armed Conflict*. New York, NY: Potomac Books Incorporated, 1991.

Thomson, Mark. "Defence Reform: The Australian Experience", *Atlantic Council workshop on comparative defence reform*, ASPI, 21 June 2013, https://www.aspi.org.au/__data/assets/pdf_file/0011/17210/Workshop_Canada_Thomson_fiinal_June-2013.pdf

Thorpe, George C. *Pure Logistics*. Washington DC: National Defense University Press, 1986.

Tsouras, Peter G. The Greenhill Dictronary of Military Quotations, Greenhill Books, Mechanicsburg PA, 2000.

Tuttle, William GT. Defense logistics for the 21st century. Annapolis, MD: Naval Institute Press, 2005.

U.S. Congress. Office of Technology Assessment. *Holding the Edge: Maintaining the Defense Technology Base, OTA-ISC-420.* Washington, DC: U.S. Government Printing Office, April 1989, http://ota.fas.org/reports/8920.pdf.

United Kingdom. Ministry of Defence. *JDP 4-00, Logistics for Joint Operations.* Swindon, Wiltshire, UK: The Development, Concepts and Doctrine Centre, April 2007.

United States. Department of Defense. *US JP-4.0, Joint Logistics.* Washington, DC: Chairman Joint Chiefs of Staff, 16 October 2013.

United States. Department of Defense. *US JP-3.0, Doctrine for Joint Operations.* Washington, DC: Chairman Joint Chiefs of Staff, 11 August 2011.

Weschler, Thomas R. *Priorities and Emphases for Logistics*, in *Naval War College Review*, Summer 1976.