



AUSTRALIA

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Accelerating the Australian Army's Contest of Ideas



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About This Report

The Australian Army, as an Army in Motion, prides itself on its pursuit of an intellectual edge. The Chief of Army stressed in his 2020 Accelerated Warfare Statement the importance of an ongoing Contest of Ideas to ensure that the Army does not rest on its laurels and keeps pace with rapidly changing events and technology. Accompanying this is a call to make how this contest occurs more transparent and accessible to all those within the Army, taking advantage of the different media through which ideas can be presented. To this end, this report proposes that the Contest of Ideas can be conceptualised as an “innovation flow” whereby it starts with an input (the ideas that go in), develops (as it is discussed and debated through the organisation), and ultimately results in an output (what comes out as impact). It is acknowledged that the term “innovation” is enjoying popular use within Defence at this time, particularly with respect to approaches to developing technology. Therefore, it is important to note that in this research we have constrained the innovation flow at this stage to ideation—the formation of ideas and concepts.

Examining a range of such idea flows within several different fora such as the *Australian Army Journal (AAJ)* or the *Land Power Forum (LPF)* provides insight into their scope and who contributes to them. By analysing words used, unique time periods are identifiable which reflect strongly the associated current events.

The Accelerated Warfare Statement is referred to often on the *LPF*, which is representative of the currently preferred blogging medium, where raw ideas (initial inputs) are easily presented. Remaining consistent with its history, the *AAJ*, at least, should in time be a forum where these ideas are contested, and implications of Accelerated Warfare emerge as credible, evidence-based initiatives with impact, but with much broader ownership across the Army, given their beginnings. In previous issues of the *AAJ*, the influence of the Chief of Army on ideation is evident, as alongside the Chief’s personal contributions, a discourse in the Army involving its staff can be witnessed which arrives at culminating outputs, often highlighted in a special issue of the journal.

If full advantage is to be taken of the different fora now available to submit contributions across all phases of an innovation flow, much more proactive management of those fora and inputs, and identification of their specific contribution to the flow, are needed to render impact. The Australian Army Research Centre (AARC), with its role as a research hub and facilitator of innovative thinking, may be best positioned for this.

This research was sponsored by the AARC and led by RAND Australia. For more information about RAND Australia, see www.rand.org/australia or contact the RAND Australia Director listed on the webpage.

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Summary

Introduction

The current Chief of Army stressed in his 2020 Accelerated Warfare Statement the importance of an ongoing Contest of Ideas to ensure that the Army does not rest on its laurels and keeps pace with rapidly changing events and technology. This reflects the organisation's "Army in Motion" philosophy and its intent to develop its intellectual capital. The Australian Army Research Centre (AARC) is at the front line of this Contest of Ideas, raising the level of professional debate on war and its challenges within the Army. It delivers this principally through a range of publications: the *Australian Army Journal (AAJ)*, the *Land Power Forum (LPF)*, longer standalone research papers, and research initiatives contracted through the Army Research Scheme (ARS), which has an annual budget of around \$250,000. The aim of this study was to analyse how data generated between 2014 and 2020 across these different publications have contributed to the Army's Contest of Ideas and positive transformation within the organisation.

The AARC is the current iteration of an Army research and analysis-focused directorate. It is the natural inheritor of the responsibilities of the Land Warfare Studies Centre, which for 14 years alongside the Army History Unit conducted much of the Army's humanities research. This work makes an equally important contribution to innovative thinking in the Army, but it has not been analysed in this current study.

Approach

RAND Australia proposed that the Army's Contest of Ideas may be considered an "innovation flow" process that starts with inputs (the ideas that go in) that are then discussed and debated throughout the organisation, ultimately resulting in outputs (what comes out as impacts). In essence, a range of ideas can lead to meaningful positive change whether that be in the form of new warfighting concepts, organisational structures, targeted training or capability investments. The innovation flow model developed for this study consists of four phases: (1) Discover and Explore, (2) Create and Share, (3) Enrich and Validate, and (4) Prototype and Realise.

The aim of this initial study was to examine the scope of the AARC's data holdings with the view to discerning how the initial ideas discovered and explored may contribute to enhancing innovation within the Army.

Methods

AAJ articles, *LPF* blog posts, standalone research papers, and works generated from the ARS between 2014 and 2020 were collected for analysis. The research sample included

over 430 separate articles and 2 million words, which were analysed using a combination of methods, including quantitative, categorical, and thematic analyses. In particular, RAND-Lex, a suite of text analysis software developed by RAND, was used to provide a more objective analysis of the different words used over time, their frequency, and the tone in which they were presented.

Keyness analysis, a tool in the RAND-Lex suite, finds words which may be considered significant or key to identifying trends or ideas, and the categorisation of articles into broad research themes informed our understanding of what topics were being written about. This allowed the scope of ideas to be determined, consistent with Phase 1 (Discover and Explore). Analysis of the authors identified who was contributing to the ideas, in part informing Phase 2 (Create and Share). Stance analysis, another tool in the RAND-Lex suite, reveals how language is used to convey ideas, and can determine whether the way in which ideas are expressed shapes their impact. This analysis presented a different perspective on Phase 2. Finally, a longitudinal thematic analysis explored the ideas written about over time, identifying characteristics of the total innovation flow primarily associated with the formation of warfighting concepts and responses, and the impact of leadership.

Observations

From Phase 1 of the analysis numerous ideas were generated through a variety of sources. However, a major observation from our analysis was that each of the different sources has its own distinctive role, at least for the period under study (2014–2020):

- *LPF* is more focused on technology/future-based short pieces with a lower level of entry. These were identified as raw ideas. During 2019–2020 there were many references to Accelerated Warfare.
- *AAJ* or “Other” works (including occasional papers, research reports and Land Warfare Studies Centre reports) are longer, evidence-based, and more contested and validated than *LPF* blog posts, with a propensity for analysing historical events.
- ARS reports are representative of deep research across a diverse, unique set of themes.

Beyond this, regardless of the data source, words found to be significant tended to reflect events of the time. For example, the RAND-Lex analysis revealed that for the period 2019–2020 the words “pandemic”, “accelerated”, “competition” and “zone” all had high use rates.¹ For the period 2014–2018, meanwhile, “expeditionary”, “Afghanistan” and “Special Operations” were all salient words, not surprisingly as this was immediately following a period of demobilisation for the Army, and the Special Forces in particular, from operations in the Middle East.

However, a comparison of these findings with categories outlined in the 2017 Army Strategic Futures Agenda (ASFA)² revealed that there are some themes and topics that are well addressed by the articles while others, including “Veterans’ issues”, are not covered at all. This may indicate that existing work needs greater visibility, or that more work needs

¹ The log likelihood measure was used in this study, whereby anything greater than a value of 10.83 is deemed significant, meaning a word’s use rate has a very high probability (>99%) of being significant rather than accidental. These words had values greater than 100.

² The ASFA lists themes/topics “designed to promote thinking and encourage research both internally, and externally from academia and industry, with regard to developing Army.” Department of Defence, Australian Army Research Centre, “Army Strategic Futures Agenda,” 2017, introduction.

to be done in these areas. The ASFA, as the framework against which Army contracts specific research from external sources, including academia, could then be revised accordingly.

In Phase 2 of the analysis we examined who was presenting the ideas. Army captains, majors and lieutenant colonels were identified as the most frequent contributors, although in most cases this resulted in only one article. This is perhaps not surprising given the stage of their career, but they are also afforded the opportunity to engage in postgraduate study at, for example, the Australian Defence College. From examination of articles and authors only, very limited conclusions can be drawn beyond acknowledging that this cohort, many of whom have engaged in postgraduate study, represent a significant data source. Indeed, as they may have the time and capacity to undertake more detailed research, they could be directed to help transition a more specific range of ideas along the innovation flow.

Finally, a longitudinal study of *AAJ* articles published over 20-plus years revealed a realisation of ideas through periodical special issues around set themes. These themes could be traced back to their origins some years before, but important in both starting and completing the innovation flow was the incumbent Chief of Army.

Recommendations

What the study's findings highlight is that each publication mode has distinctive characteristics that makes it more suited to particular topics (e.g., future-focused or retrospective), and that each publishes ideas at different levels of maturity. Recognising the strengths of each publication mode is important for understanding how to progress ideas through the innovation process.

As the various modes of publication have unique roles, strengths and weaknesses, there is utility and value in managing the sources strategically such that they support and sustain each other and act in complementarity. The recent trend towards blogging, for example, may well result in an imbalance between raw and tested ideas, which will have significant implications for the utility of those ideas.

The first step in managing the sources would be to understand the roles of the publication modes and to appreciate what they represent. It appears that they have, to some extent, evolved organically rather than by design. Strategic management of the AARC's publication portfolio would include a review of the role of the ASFA framework and the Army's areas of interest. A revised framework could enable the more effective identification of research gaps and could also be used to measure impact.

Strategic management would also involve coordination of the AARC's internal sources with those that are managed externally within Defence, including (but not limited to) *The Cove*, *Grounded Curiosity*, *The Forge* and *Logistics in War*. An important part of developing a strategic framework is determining how the AARC's publications could work with, and capitalise on, what is being done on these other platforms. The intention would not be to undermine those resources, but to create fruitful links with them and take advantage of what they offer.

Moreover, effective management across and beyond the AARC catalogue relies on the provision of high-quality data. For publication data to have optimal utility, whether for future research or in accurate record-keeping, they need to be complete, consistent and accessible.

Each course of action discussed here speaks to the future role and identity of the AARC. While we have focused only on publications and developed only an initial understanding of their impact, it can be readily concluded that driving and managing the innovation flow

through the more mature phases requires leadership. Here, the AARC may need to assume a greater role in driving ideas through to at least the next phase of innovation. Alternatively, it may position itself as curator of the innovation process, collecting evidence that demonstrates how ideas manifest in positive change (or otherwise) in the Army and assisting in the success of future innovation efforts.

Acknowledgments

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Abbreviations

<i>AAJ</i>	<i>Australian Army Journal</i>
AARC	Australian Army Research Centre
ADF	Australian Defence Force
ARS	Army Research Scheme
ASFA	Army Strategic Futures Agenda (2017)
FROWN	Freiburg-Brown Corpus of Standard American English
<i>LPF</i>	<i>Land Power Forum</i>

Introduction

Background

The Australian Army is engaged in a Contest of Ideas,¹ seeking to ensure that as an Army in Motion—ready now, and future ready—it has an intellectual edge over potential adversaries. In an era of rapid change, the Army is looking to think in creative and unconstrained ways to develop a warfighting philosophy to inform future capabilities. The current Chief of Army articulated in his 2020 Accelerated Warfare Statement that the continuous contesting of ideas is a key principle for an Army in Motion, reflecting Army’s desire to develop its intellectual capital.²

The Australian Army Research Centre (AARC) is at the front line of this Contest of Ideas, raising the level of professional debate on war and its challenges within the Army. The AARC is the current iteration of an Army research and analysis-focused directorate, and in 2021 comprises of a Research and Innovation Section, a Strategic Analysis Section and an Outreach Section. The Research and Innovation Section administers the Army Research Scheme (ARS) and provides academic-level support to Army researchers. The Strategic Analysis Section performs “horizon-scanning” and decision-support activities, as well as providing regular analysis updates to disseminate widely throughout the Army. The Outreach Section comprises a team managing the AARC’s external profile.

The AARC is the natural inheritor of the responsibilities of the Land Warfare Studies Centre, which for 14 years alongside the Army History Unit conducted much of the Army’s humanities research. While this work makes an equally important contribution to innovative thinking in the Army, it has not been analysed in this current study.

AARC delivers several publications with varying requirements, length and readership. The *Australian Army Journal (AAJ)*, the premier professional publication of the organisation, is a publication intended “to share ideas, discuss issues and do the most important thing that a leader can do: offer thoughts to prepare those who will inevitably follow them in the near and more distant future”.³ The AARC’s occasional papers are significant stand-alone works “designed to generate informed discussion and new ideas that contribute to Army modernisation and the future of land power”.⁴ The *Land Power Forum (LPF)* is a blog for informed analysis and commentary on emerging threats and opportunities and the topic of land power. Complementing these publications is the ARS which, with an annual budget of around \$250,000, seeks “service providers to undertake paid research on

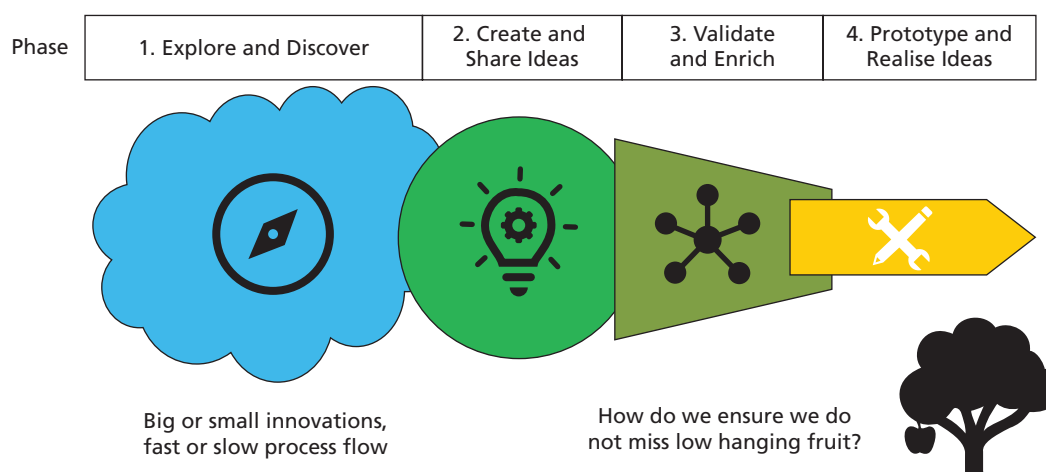
¹ The term “Contest of Ideas” is capitalised throughout in order to distinguish it as the specific initiative of the current Chief of Army. See Rick Burr, “Accelerated Warfare Statement,” 22 October 2020.

² Burr, 2020.

³ David Beaumont, “Foreword,” *Australian Army Journal*, Vol. 16, No. 1 (2020), p. 5.

⁴ Australian Army Research Centre, “Occasional Papers,” webpage, undated a.

Figure 1.1
Contest of Ideas Depicted as an Innovation Flow



topics to inform future land force development and modernisation” through a competitive process.⁵

To see how these efforts are contributing to the Contest of Ideas, RAND proposed understanding the Contest of Ideas as an innovation process that progresses through the following four phases:

1. **Explore and Discover.** In the first phase, ideas are generated (i.e., discovered and explored) to deliver diverse and unconstrained thinking. As is evidenced by the high tempo of contributions to online platforms, and the research activities overseen by the AARC, the Army has been heavily investing in this first phase.
2. **Create and Share Ideas.** The innovation process of creating and sharing must be managed to get the best results. In this phase, the ideas of the first phase are brought together to identify and create some specific, or more targeted, areas. This is where the ideas, through a deliberate process of sharing, begin to be contested.
3. **Validate and Enrich.** This phase is about enriching the range of ideas or the ideas themselves. This is where we begin to test and validate the ideas to assess where the future focus needs to be and provide options for how a robust contest between ideas may be conducted.
4. **Prototype and Realise Ideas.** The final phase involves progressing those ideas or designs to the application or prototype space, which may range from (but is not limited to) concepts, technology ideas, force structure, doctrine, or policy.

This four-phase innovation flow process is represented diagrammatically in Figure 1.1.

Research Purpose and Aims

The primary objective of this report is to understand the scope of the data holdings within the AARC in relation to the first phase of the innovation process (Explore and Discover).

⁵ Australian Army Research Centre, “Programs,” webpage, undated b.

Observing the range of contributions across the various sources led us to identify ideas that could be described as

- **popular ideas**, which are themes or ideas that inform categories associated with technology development, organisational change initiatives, or evolving world context
- **persistent or recurring ideas**, which are often focused on supporting or challenging deeply bedded assumptions associated with Army warfighting
- **consistent ideas**, which include evolving concepts being investigated by a range of armies
- **unique ideas**, which are, as the name suggests, ideas unique to a particular topic or, conversely, a unique perspective on a topic.

The identification of these types of ideas or topics would allow the AARC to assess whether it is engaging in ideas that are original, comparable, complementary or incompatible with those of its contemporaries, and whether there is a need to generate increased capacity either in the Army or through targeted research to answer some of the most pressing questions.

This was a small exploratory project conducted over a short period of time. We used a combination of analytical methods, including RAND-Lex (a proprietary suite of text analysis software tools developed by RAND), to identify ideas which are popular, persistent and unique among the AARC holdings, and to highlight the extent to which the catalogue of research is in line with the Army's strategic interests.

An important aspect of this initial research was to unearth nuances of the innovation flow, how to mature an idea to realisation, and how to translate it into impact. Accordingly, our research includes analysis of how this may have happened in the past, and how that might be improved going forward.

The research process itself took longer than expected as much of the material to be analysed was not readily accessible. Data had to be organised into a usable and appropriate format, and interpretation of results required additional contextual interrogation. Commensurate with the time constraints of the project, this report delivers some preliminary research findings, and only some interpretation of those findings.

Notably, the observations included in the report are not definitive and followed a heuristic approach. The observation sections highlight points for further interrogation and deliberation. Our interpretation of the data has been supplemented by our own informed understanding of the Defence space, and incorporates ideas drawn from discussions with members of the AARC regarding our initial findings. Consequently, the report is also a record of this collaboration and provides a foundation for future research directions. There is certainly scope for extracting additional information (including from existing datasets using the RAND-Lex tool) and drawing out more meaning from the results through detailed contextual analysis.

Approach Overview

In this chapter we describe the overall approach to the study. This includes outlining the sources of data used and the rationale for the limitations placed on the research sample. In addition, we align each different analytical method applied to the data with a phase of the innovation flow described in Chapter 1.

Data

Articles analysed were limited to those associated with the AARC, specifically those listed as sources under “Library” on its website. Most of these sources are publicly accessible through the AARC website, and, for this study, they were defined separately in the following way, consistent with their different word-length requirements:

- *AAJ* articles, 4,000–6000 words
- *LPF* blog posts, 600–1000 words
- Occasional papers, research reports, Land Warfare Studies Centre reports, and other long reports (hereafter referred to as “Other”), 10,000-plus words
- ARS contract reports, 10,000-plus words.

An exception here were the ARS contract reports. These comprise final deliverables (usually at the end of 12 months) against contracts awarded to successful bidders for ARS funding. These typically represent a substantial report (>10,000 words). Managed by the AARC, the ARS calls for research proposals and is a relatively new initiative for the Army.¹ These reports are for internal consumption in the first instance with some subsequently being published in the *AAJ* or *LPF*, in a truncated version. Therefore, these reports were delivered directly by AARC staff to RAND for the study.

The study was also constrained by only examining the period 1 January 2014–23 October 2020. Initially the AARC wanted to consider only the articles that have been published since its inception in 2017. But in order to ensure a useful set of data (in size) was available, it was determined that all articles that had appeared since the introduction of the *LPF* in 2014 should be included. This second limitation was driven by the time and budget constraints of the project.

It should be noted that while all the articles were provided in electronic format, there was wide variation in the frequency of publication between the sources. For example, the *LPF* is a blog, and contributions appear as posts within a relatively short timeframe of their submission. Following the normal publishing process of academic journals, the *AAJ*

¹ For more information, see Australian Army Research Centre, “Army Research Scheme,” webpage, 31 August 2020. While the ARS is a significant research initiative, its funding is only approximately \$250,000 per annum.

is published at least once per year, depending upon the contribution of articles. Each issue comprises on average 8–10 articles. Additional content may include opinion pieces and book reviews, the guidelines for which are not formally articulated, but the latter tend to comprise approximately 1,000 words.

An exception was made with the *AAJ* in relation to the eligible time period. Given the *AAJ* has been in publication for many years, issues dating back to 1999 were accessed to inform a longitudinal thematic analysis. The year 1999 was chosen as the start date for this analysis because the *AAJ* had undergone a revitalisation at that time. The time and budget constraints within this project did not allow for a more detailed examination over a longer period of time.

Analysis Approach

There are five main components to our analysis of the data. These are discussed respectively under either Phase 1 or Phase 2 of the innovation flow shown in Figure 1.1. This was done as observations drawn from the analysis were determined to predominantly inform that phase. It is acknowledged that the observations and subsequent recommendations may also inform other phases of the flow. In addition, the longitudinal study undertaken provides an example of how the results of an innovation flow may manifest within reported research:

Phase 1: Discover and Explore

1. **RAND-Lex, keyness testing:** comparison of two corpora (target corpus vs baseline corpus) for words which are statistically more or less likely to be represented.
2. **Categorisations:** categorisation of articles by broad research themes as presented in the 2017 Army Strategic Futures Agenda (ASFA).

Phase 2: Create and Share

1. **Articles and authors:** consolidation of the available data and quantitative analysis of numbers of articles by source, and author characteristics.
2. **RAND-Lex, stance testing:** comparison of two corpora (target corpus vs baseline corpus) to determine whether use of particular groups of words associated with stance (e.g., affect, values, certainty) are significantly different.
3. **Longitudinal study:** thematic analysis of *AAJ* articles published between 1999 and 2020.

What follows next is a detailed consideration of each of these five different analyses in Chapters 3–7, respectively, with each chapter subdivided into the following sections:

- Data and Analysis Methods
- Initial Findings
- Observations
- Future Research

Chapter 8 suggests directions for future research, while Chapter 9 discusses the overall findings and provides concluding observations and recommendations.

RAND-Lex Keyness Analysis

Data and Analysis Methods

In order to interrogate the entire set of data holdings we used RAND-Lex, a proprietary suite of analytic tools created by RAND Corporation researchers to perform rigorous and complex text analytics. As explained adroitly in another RAND report which has used the tool, “RAND-Lex includes statistical testing, expert workflows, and tooltips that allow users to answer policy questions through empirical analysis of text collections too large or onerous for human labour to read and analyse”.¹ Therefore, its strength lies in having machines and humans each bring complementary capabilities to analysis. RAND-Lex can be used to locate the proverbial needle in a haystack as well as, potentially, to identify scores of needles from fields of haystacks. At the same time, this tool can also recognise different kinds of needles, including some that humans might not be capable of identifying on their own.

Keyness testing is one of the many tools RAND-Lex offers. In keyness testing, words are identified that are used significantly more frequently in a target corpus when compared with a baseline corpus, in which words appear at expected usage frequencies. The words may be considered significant or *key* to identifying trends or ideas. Specifically, a statistical measure (called the log likelihood ratio) measures keyness² and indicates the strength of this significance—words with a log likelihood ratio greater than 10.83 indicate a probability of a word being used randomly or by chance to be very low (in fact probability [p] is less than 0.001). In other words, a log likelihood ratio greater than 10.83 means that there is a high level of confidence (99.9%) that the appearance of this word is significant and deliberate. The higher the log likelihood ratio, the higher the presence of that word in the target corpus compared with the baseline corpus. Words with a log likelihood ratio greater than 10.83 and a minimum usage frequency of 10 in the target corpus, and which are used in at least 10 percent of target documents, were considered as indicative of “persistent/recurrent” ideas—that is, ideas which are discussed often and over multiple publications.

For our analysis, keyness testing was used first to compare usage of words over time. The AARC publications were analysed from the perspective of time, comparing articles published in 2014–2018 to those published in 2019–2020 in order to identify whether there was a change in the words being used in the AARC over these two periods and more specifically what those words were.

¹ Sarah Parks, Becky Ioppolo, Martin Stepanek, and Salil Gunashekar, *Guidance for standardising quantitative indicators of impact within REF case studies*, Research England, RR-2463-HEFCE, 2018.

² M. Scott, *WordSmith Tools Manual*, Oxford: Oxford University Press, 1996; M. Scott, “PC Analysis of Key Words—and Key Key Words,” *System*, Vol. 25, No. 2 (1997); and Lexical Analysis Software, WordSmith Tools, version 6, 2012.

Table 3.1
Words with Highest Increase in Usage in 2014–2018 Compared with 2019–2020

Word	Log Likelihood	Frequent Uses in Context
Expeditionary	252.0	Expeditionary warfare, expeditionary operations, expeditionary joint/amphibious capability
Logistics	210.0	Varied, including logistics management, logistics capability, logistics strategy
Maritime	206.0	Maritime strategy, maritime interests
Theory	171.6	Varied, including conflict theory, theory of change, gender/feminist theory, military theory, manoeuvre theory, organisational theory
Strategy	168.7	Varied, including maritime strategy, national strategy, conflict theory and strategy
Afghanistan	159.9	War in Afghanistan, Australian operations in Afghanistan, Iraq, Pakistan
Men	158.1	Masculinity/gender issues, race, men and women
Special	129.7	Special operations, special warfare, special information warfare
Operations	123.7	Varied, including special operations, conducting operations
Amphibious	118.8	Amphibious warfare, amphibious operations

ARS reports were excluded after initial keyness testing showed that the significant words in these articles overwhelmed the significant words found in other articles. Given that the ARS reports were lengthy, few in number, and represented unique work that the Army had contracted, the study team determined their exclusion was appropriate. The time distinction between the two corpora was chosen to coincide with the appointment of the current Chief of Army in July 2018, LTGEN Rick Burr, to ascertain whether subsequent publication of his statements on Army in Motion and Accelerated Warfare had an impact on the data holdings.

Contrasting the analysis over time, we also performed keyness testing comparing articles published in the *AAJ* (2014–2020) with *LPF* blog posts (2014–2020), in order to discern whether each source used different language or was focused on different topics.

Initial Findings—Over Time

Words used significantly more frequently in 2014–2018, and in 2019–2020, are shown in Tables 3.1 and 3.2, respectively.

2014–2018

As shown in Table 3.1, words in this earlier time period are synonymous with the Australian Defence Force (ADF) commitment to Afghanistan³—Operation Slipper which commenced in 2001 and ended on 31 December 2014. This involved multiple deployments of Special Forces and Special Operations Task Groups, as well as the supply of a Logistics Training and Advisory Team in Kabul in 2010.⁴

³ Words underlined in this paragraph and the first paragraph on page 9 are listed in Table 3.1.

⁴ Australian Department of Defence, “Global Operations,” webpage, undated.

Table 3.2
Words with Highest Increase in Usage in 2019–2020 Compared with 2014–2018

Word	Log Likelihood	Frequent Uses in Context
Accelerated	363.0	Accelerated Warfare
British	336.4	Varied, including British military, British Army, British government
Competition	268.6	Power/geopolitical competition, industry competition
Rapid	267.3	Rapid intervention, rapid deployment
Precision	173.4	Precision strike, precision missiles, precision capability, precision fires
Industry	151.7	Varied, including engaging with industry, Australian defence industry, industry partners
Conflict	149.5	Varied, including power conflict, competition and conflict, future conflict
Pandemic	143.9	COVID-19 pandemic
Zone	142.2	Grey zone, killing zone
Attacks	138.5	Terrorist attacks

Leading up to and during this time, the ADF and Army, as part of the commitment in Iraq and Afghanistan and Middle East, were engaged in a range of deployments overseas to achieve specific objectives. This is consistent with definitions of an *expeditionary* force.⁵

The term “men” also had increased usage over this period. Further contextual analysis revealed that this can be attributed to the publication of several articles/papers on Army culture and teaming at this time, which included discussion of gender issues.⁶

2019–2020

As stated earlier, the Chief of Army’s Accelerated Warfare Statement puts out a call for a continuous Contest of Ideas on the central theme of Accelerated Warfare.⁷ Therefore, as anticipated, the use of the word “accelerated” increased in 2019–2020, as seen in Table 3.2. Similarly, consistent with COVID-19 dominating national and international news in 2020, the use of the term “pandemic” increased over the same period. Finally, the term “zone” had increased usage over the period 2019–2020. When analysed further, the term was found to have been largely in the context of “grey zone”, consistent with broader defence, national security, and strategic discourses, including the 2020 Defence Strategic Update and other publications.^{8:9:10}

⁵ See, for example, U.S. Department of Defense, *DOD Dictionary of Military and Associated Terms*, January 2021, p. 77, where JP3-0 Joint Operations U.S. doctrine defines expeditionary force as “an armed force organized to achieve a specific objective in a foreign country”.

⁶ See, for example, Elizabeth Boulton, *Teaming*, 2017.

⁷ Burr, 2020.

⁸ As per Table 3.2, “zone” also appeared with “killing”. In addition, “grey” was also spelt “gray” in some instances. It was surmised by the study team that these nuances collectively contributed to “zone” appearing but not “grey zone”.

⁹ As one scholar has argued, “Gray, it seems, is the new black. The concept of ‘gray zone’ conflict has generated significant attention and controversy recently, within both the U.S. government and the broader strategic studies community.” Hal Brands, “Paradoxes of the Gray Zone,” Foreign Policy Research Institute, 5 February 2016.

¹⁰ Australian Department of Defence, *2020 Defence Strategic Update*, 2020, pp. 5, 12, 14, 15, 25, 27, 30, 33.

Table 3.3
Words Used Most Frequently in the AAJ

Word	Log Likelihood	Frequent Uses in Context
Battalion	159.7	Infantry battalion, female-centric battalion, service support battalion, nth battalion
Indo-Pacific	99.2	Strategy in the Indo-Pacific region, future Indo-Pacific land forces
Indian	87.1	Indian Ocean, Indian defence force and strategy
Special	86.4	Special operations, special warfare, special information warfare
Training	76.3	Varied, including operations training, cultural/language training
Motion	75.9	Army in Motion
Reserve	68.0	Varied, including reserve units, ready reserve scheme, reserve service
Service	57.4	Varied, including combat service, overseas service, reserve service, civil service
Afghanistan	55.0	War in Afghanistan, Australian operations in Afghanistan, Iraq, Pakistan
Defence	49.7	Varied, including Australian Defence Force, defence white paper

Observations

Both datasets reflect issues that were or are of contemporary concern for the Army in the respective time periods. However, the general orientation of each appears to be different. The 2014–2018 dataset appears largely to be focused on purposeful reflection on previous operations. As Australia was drawing down or had just completed operations, and as personnel returned from operations, the Army's experiences in those theatres became fodder for reflection and lessons learned.

The 2019–2020 dataset suggests that Army discourse has become more focused on the contemporary and future operational environments—that is, on how national and international events are affecting the Army's role, and on how to posture in a changed strategic landscape and against the threat of grey-zone warfare. Indeed, the increased contributions to the *LPF* over this period have amplified the contemporisation of the Army's dialogue.

Initial Findings—Comparing Different Data Sources (*AAJ* and *LPF*)

AAJ articles and *LPF* articles from 2014 to 2020 were analysed with keyness testing. The intent of this analysis was to determine what, if any, the influence of where the article was published and the different standards or expectations of a journal versus a blog had on the ideas or language used. Tables 3.3 and 3.4 list the top ten most frequently used words in the *AAJ* articles and *LPF* blog posts, respectively.

Observations

Keyness testing for the *AAJ* over the period 2014–2020 suggests that the journal, and the articles therein, are concerned with interrogating or examining more conventional roles,

Table 3.4
Words Used Most Frequently in the *LPF*

Word	Log Likelihood	Frequent Uses in Context
Precision	304.3	Precision strike, precision missiles, precision capability, precision fires
Space	144.0	Military cyber/space operations
Technology	117.9	Varied, including quantum technology, future/emerging technology, Defence Science and Technology Group, autonomous technology
Domain	116.5	Varied, including space domain, cyber domain, cognitive domain, physical (land, maritime, air) domain
Fires	107.0	Varied, including joint fires, enemy fires, precision fires, long range fires
Strike	100.7	Varied, including precision strike, maritime strike, preemptive strike, land-based strike capability
Power	100.4	Varied, including land power, power competition, global powers, soft power
Sensors	95.2	Quantum sensors
Artillery	92.7	Varied, including artillery corps, employment of artillery
Missiles	88.0	Varied, including precision missiles, cruise missiles, ballistic missiles, conventional missiles

structures and activities for the Army, as well as the Army's role in strategic posturing. This may be, in part, attributable to the lengthier process of review associated with journal publication, which is better suited to questions of enduring importance to the Army and has greater tolerance for longer timelines.

Keyness testing for the *LPF* over the period 2014–2020 suggests that the blog is much more technology focused than the *AAJ*. This may be for a number of reasons. In the military, technology has a central role. Hence, it may simply be that contributors write about technological issues because there is a substantial appetite for the subject, especially as it has a disruptive effect on warfighting.

This finding may also reflect the user-friendliness of technological topics for military personnel. Focusing on topics with a relatively accessible and obvious evidence base makes it easier and faster to deliver commentary and analysis when compared with cultural or social questions, which require more subjective analysis.

It may also reflect the nature of the publication, and its conduciveness to certain types of ideas. Blogs and online fora facilitate ready sharing of ideas in a relatively accessible manner. This allows for opportune responses to emerging issues. Military leaders are encouraging soldiers to “evolving an intellectual edge”,¹¹ and *LPF*'s accessibility and rapid idea-sharing enables troops to keep pace with the modern world and join the discussion around the technological challenges associated with Accelerated Warfare.

The keyness testing revealed a broad range of evolving ideas that reflect both current events and interests. However, whether these ideas—at least those synonymous with the ten most significant words—reflect the totality of the Army's interests was unclear.

¹¹ See Australian Army, *Evolving an Intellectual Edge: Professional Military Education for the Australian Army*, undated c.

Further Research

To evaluate the significance of these findings in the context of broader Army discourse, they should be compared with a similar analysis of other Army-related sources, official and unofficial. This analysis may include keyness testing of sources like *The Cove*, *Grounded Curiosity*, and *Logistics in War*, which have different roles and target audiences. Extending the analysis to include publications issued by the Land Warfare Studies Centre and Army History Unit may also provide different perspectives on the findings here.

Categorisations

The 2017 ASFA aims to “promote thinking and encourage research both internally, and externally from academia and industry, with regard to developing the Army”. The ASFA focuses mainly on the study of “warfare as an art”. The themes within the framework “are based on maintaining the Army’s continued relevance in the current operating environment and informing strategic perspectives of the future operating environment. In the medium- (5 to 15 years) and long-term (15 to 30 years) future, the ASFA enables the establishment of benchmarks around research lines of effort and allows the Army to chart progress of its modernisation initiatives, or perhaps develop in different directions”.¹

Data and Analysis Methods

Given the intent of the ASFA, we surmised that it would be useful to determine a high-level overview of the range and distribution of topics presented in the articles against the framework, and whether there was an even distribution or whether any themes or topics were missed. This analysis is subjective, as many articles were relevant to more than one category. Each article was assigned to the ASFA category considered most relevant to its content.

The following categories used are defined with the ASFA, but for clarity, some additional notes on what we determined they encompass for the purposes of our analysis are described here:

- **Strategy in the Australian context.** This includes discussions on specific strategy documents, Defence policy or white papers. It also includes discussions on national strategy (e.g., Indo-Pacific strategy).
- **Operational art.** This includes case-specific approaches or technologies to achieve outcomes (e.g., discussion about specific weapons to be used in warfighting).
- **Ethos.** This includes articles written about culture in the Army.
- **Changing character of war.** This includes discussions on the impacts of cyber and new technologies on future warfare where time and space are much more compressed; and notably there is an increasing range of military activities that fall just short of war.
- **Medical issues.** This includes articles discussing mental (stress, posttraumatic stress disorder) and spiritual (moral and spiritual injury) well-being.

¹ Department of Defence, 2017, p. 3.

The following categories were added for the purposes of our analysis:

- **Book reviews.** A large majority of the books reviewed were written on historical military conflicts (which can be characterised as the “case law” of military practitioners), including World Wars I and II, and the Vietnam War.
- **History—Lessons learned.** This category covers lessons learned or observed and describing events of previous conflicts.
- **Global/emerging technology.** This category covers articles which describe current and global events, including the Emerging Threats and Opportunities series on the *LPF*.
- **Miscellaneous.** This category covers, for example, promotion posts on *LPF* or appendixes to ARS work.

Initial Findings—AAJ Articles and LPF Blog Posts

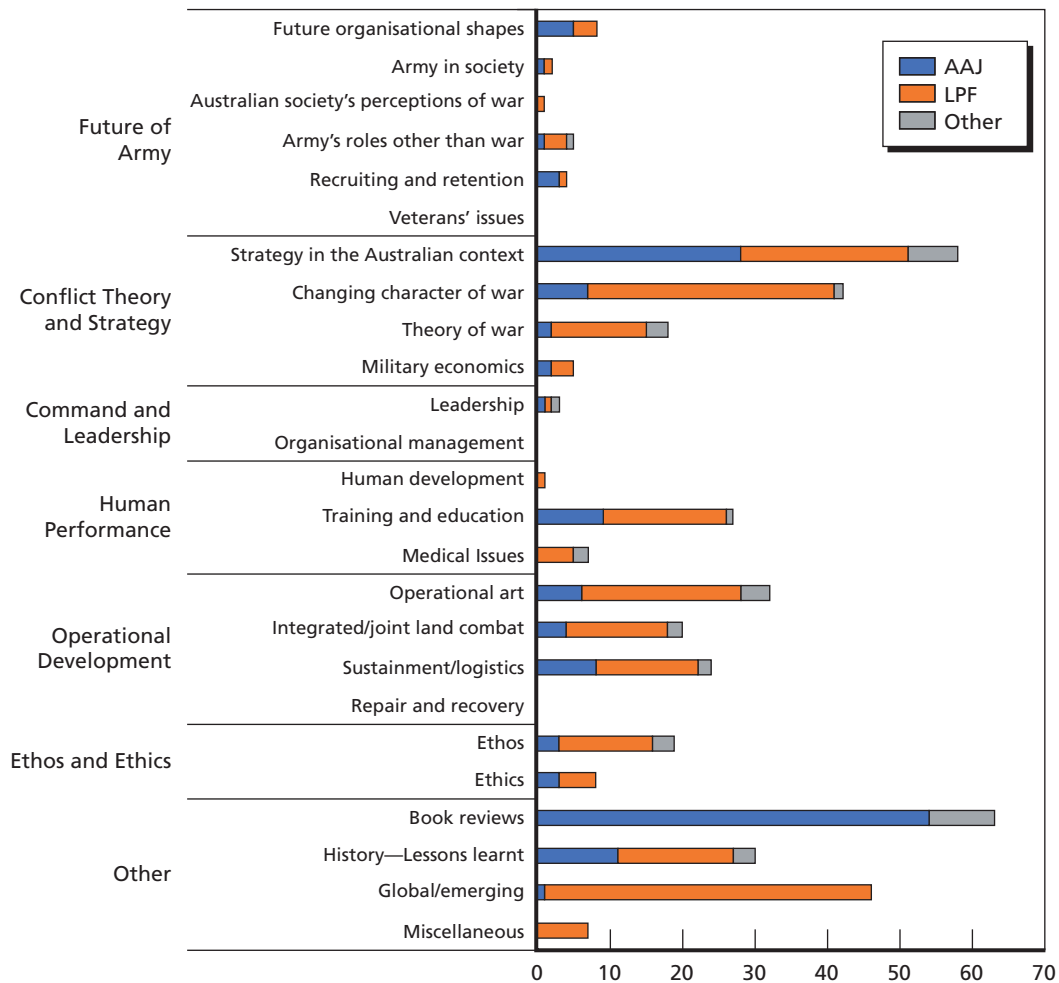
Table 4.1 lists the 2017 ASFA and added categories with the highest percentages of articles. The distribution of article topics by source (*AAJ* or *LPF*) is presented in Figure 4.1.

In Figure 4.1, the “Other” theme has been introduced to capture the additional categories, described above, that were added for the purposes of our analysis. As can be seen in Figure 4.1, this attracts the most articles. Book reviews comprise a large proportion of this theme. Book reviews are an important contribution to journals in that they afford readers a collective assessment of recent publications in a particular field, use a particular meth-

Table 4.1
Top 2017 ASFA Categories by Source

	Category	Percentage	N
<i>AAJ</i> 149 articles	Book review	36.2%	54
	Strategy in the Australian context	18.8%	28
	History—Lessons learned	7.4%	11
	Training and education	6.0%	9
	Sustainment/logistics	5.4%	8
<i>LPF</i> 251 articles	Global/emerging technology	17.9%	45
	Changing character of war	13.5%	34
	Strategy in the Australian context	9.2%	23
	Operational art	8.8%	22
	Training and education	6.8%	17
Other 30 articles	Strategy in the Australian context	23.3%	7
	Operational art	13.3%	4
	Ethos	10%	3
	History—Lessons learned	10%	3
	Theory of war	10%	3
ARS 52 articles	Operational art	21.2%	11
	Training and education	9.6%	5
	Sustainment/logistics	9.6%	5
	Medical issues	9.6%	5
	Changing character of war	7.7%	4
	Ethics	7.7%	4

Figure 4.1
AAJ Articles and LPF Blog Posts Classified by 2017 ASFA Categories



odological approach, and act as a useful entry point into a broader debate. As most of the books reviewed were about historical operations, the contribution they make to the Army discourse when combined with other historically oriented articles is significant. The book reviews, together with the Australian Army Reading List (which itself is weighted heavily towards history²), present Army personnel with a plethora of information to draw from. That said, given the large volume of material, both sets of recommendations may benefit from a historiographical review to enable readers to target books suited to their specific requirements.³

Beyond this, the Conflict Theory and Strategy and Operational Development themes attracted the next highest number of articles. Articles about strategy in the Australian context and the changing character of war dominated the former. There was a broader representation across the topics encompassed by the latter theme.

² “A large number of the books in this reading list can be described as military history with a healthy selection on the Australian Army’s experience in war. The books provide a corpus of knowledge about past events, their context and how victory or defeat occurred.” Australian Army Research Centre, *Australian Army Reading List*, 2019, p. 1.

³ “The historiographical review provides a critical survey of a particular field, historiographical debate, or methodological approach.” Cambridge University Press, “Book Review Information,” webpage, undated.

Observations

While the Conflict Theory and Strategy and Operational Development themes are different, there is a strong relationship between them since one discusses contexts and the other discusses the likely response to such contexts. Collectively there is a strong emphasis on looking back to learn lessons. Historical lessons drawn from operational experience are recognised as pivotal for military practitioners, but this tends to drive a retrospective outlook rather than a future-focused one. When added to the dominant contribution of the History theme, it may be concluded there is an overall propensity to reflect rather than posture. This is made even more stark when the low contributions in the Future Army theme are observed. When meeting the challenges of Accelerated Warfare, the Army may require more balance between history and future. Therefore, it is important to observe in Table 4.1 that when the *AAJ* and *LPF* contributions are examined separately, the *LPF* is much more future focused, regularly presenting articles on emerging technologies and their impact, reflecting the changing character of war. The translation of some of these initial and contemporary pieces into more substantial articles may increase contributions in the Future Army theme.

Initial Findings—ARS Reports

The AARC staff advised the project team that the ASFA framework was used to inform the formulation of the ARS questions each year, and so we wanted to determine how the ARS reports aligned to the framework. Fifty-two files were received for this analysis. These comprised articles written for the awarded contracts only.⁴ The results of the categorisation are shown in Figure 4.2.

Observations

Contrary to our initial thoughts that the work contracted here may fill gaps that *AAJ* and *LPF* leaves, the distribution of the ARS mirrors that seen in Figure 4.1. Therefore, it is unclear whether the distribution is more a reflection that the interests of the decision-makers are consistent with the prevailing research interests of the Army (as represented by Figure 4.2), or whether the distribution is representative of the ARS submissions received and thus trends or interests were already set.

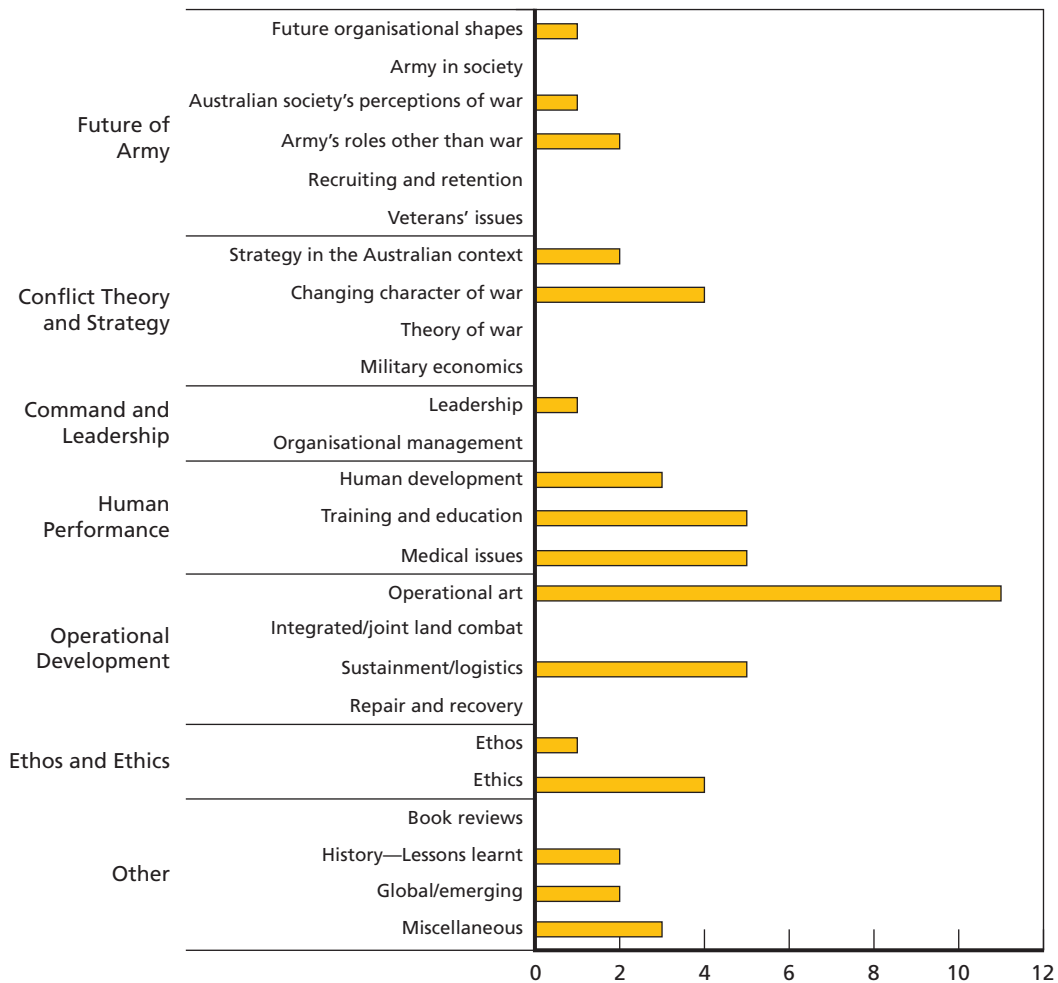
To determine which of these conclusions is correct, access to the total number of submissions would be required. In either case, with the visibility now gained of the gaps or missing research against some of the themes, and, working on the assumption that all themes are of interest to the Army,⁵ these areas represent the opportunity for the Army to commission specific research to inform the themes and topics more appropriately.

Overall, the analysis from the developed categorisation indicates that the articles published do not reflect the totality of Army interests. Even in the case of the ARS reports—where the Army has opportunity to pursue specific interests—some gaps in their stated inter-

⁴ Three of these reports were categorised as miscellaneous and included an assessment report written by the AARC against a deliverable, an appendix with figures to another article, and a survey appendix that could not be attached to a specific article.

⁵ Unless, as previously suggested, investigation reveals that there is no requirement for data or research on these topics.

Figure 4.2
ARS Reports Classified by 2017 ASFA Categories



ests remain unfilled. Therefore, this lack of conformity with stipulated Army priorities does bring into question how broad and exploratory the ideas being pursued are.

That said, this may not matter if the articles reflect the thinking and ideas of the Army, and the ideas that they want contested. To this end, an examination of who contributes the articles is carried out next.

Future Research

It is understood that the AARC is finalising a review of the ASFA framework. In the future, it would be useful to reexamine the distribution against the new framework and determine whether the rationale for review has had an impact on the distribution and, perhaps more importantly, a subsequent impact on the type of research contracted.

More detailed investigation into what the implications are for the gaps seen in the categorisation needs to be undertaken. At present, it is unclear whether

- these gaps reflect a fundamental gap in Army thinking
- the areas or topics they represent are managed well and therefore do not need to be discussed

- they are of no interest to the Army
- they are simply a low priority against all things that the Army must do and consider.

Whether this is consistent with what the general population thinks about the topics should also be considered. Certainly, the absence of research relating to the “Veterans’ issues” category may indicate that existing work needs greater visibility, or that more work needs to be done in this area.

Articles and Authors

Quantitative analysis was undertaken to gain a deeper understanding of the contributors to the publication modes. Understanding who is contributing may provide some initial insight into Phase 2 of the innovation flow (Create and Share). Certainly, committing ideas to print indicates a desire to share, but whether this extends to having those ideas discussed and contested is something that we were keen to verify.

Data and Analysis Methods

A total of 482 articles (2,093,105 words) were collected from across the four listed sources between 1 January 2014 and 23 October 2020.¹ These were interrogated to identify the following:

- **Author(s).** There were 313 independent authors for 466 articles, with 16 articles not having an author listed.
- **Author affiliation.** This was specified as either internal (i.e., a professional serving member of the Army) or external (this included members of other services within Defence and those external to Defence altogether).
- **Gender.** An initial allocation against the author's name was verified through other data sources.
- **Number of articles authored.** Each author's total number of contributions across all the data holdings was determined.

Initial Findings

Authors were predominantly male (250 male, 62 female).² Around half were internally affiliated with the Army (47.6%, 149/313)—that is, they were professional Army members, some of which also had present or past affiliation with the AARC. External authors were predominantly those associated with the ARS contracts (102) and in total were almost on a par with internal contributors (46.6%, 146/313). Finally, a small percentage of authors had

¹ As discussed earlier, the start point was chosen to coincide with the commencement of the *LPF*. This provided a sizeable dataset that could still be managed within the time and budget constraints of the project.

² This ratio indicates that nearly 20 percent of contributors were women. Women represent 15.8 percent of the Army workforce according to the Army's "Total Workforce Pocket Brief" obtained through private communication with Army staff, July 2020.

Table 5.1
Author Characteristics, by Source

	<i>AAJ</i>	<i>LPF</i>	Other	ARS	All
<i>N</i> articles	149	251	30	52	482
<i>N</i> independent authors (<i>N</i> unknown authors)	133 (4 unknown) ^a	105 (2 unknown)	25 (4 unknown)	106 (6 unknown)	313 (16 unknown)
M:F ratio	114:18	91:14	19:6	72:34	250:62
Affiliation	79 internal 41 external 13 unknown affiliation	86 internal 14 external 5 unknown affiliation	16 internal 9 external	4 internal 102 external	149 internal 146 external 18 unknown affiliation
<i>N</i> contributing only one article ^b	118/133	62/105	20/30	92/106	226/313

^a All four *AAJ* articles with unknown authors were session summaries published in the “An Army in Motion—Chief of Army Land Forces Seminar 2018” special issue of the *AAJ* (Vol. 14, No. 3).

^b These numbers are separated by source. For example, for the *AAJ*, 118 out of 133 authors contributed to one *AAJ* article; however, they may also have contributed to articles published in other sources.

unknown affiliations (5.8%, 18/313).³ A breakdown of author characteristics by source is shown in Table 5.1.

Other initial findings included the following:

- Within the *AAJ* and Other sources, most authors wrote only one article.
- Within the *LPF*, the number of repeat authors was considerably higher than within the *AAJ* and Other sources. One author, Andrew Maher, wrote 30 *LPF* posts.
- ARS reports usually involved multiple authors. As most of these contracts were executed by teams in universities, this was expected.

Overall, however, a large proportion of authors (72%, 226/313) only contributed one article. Of the authors who contributed five or more articles, 68 percent (13/19) were affiliated (past or present) with the AARC. A list of these authors is included in Appendix A.

Observations

The contributors to *AAJ* and *LPF* were predominantly Army personnel. Indeed, if we discount the ARS reports, of the remaining 245 contributors, 181 (74%) were Army members. Moreover, the AARC-affiliated contributors tended to dominate contributions to these publications, especially the *LPF*. This is expected to some degree given the intent of these fora to engage members of the Army in discussion and to share thoughts among its membership. However, the predominance of internal contributors and the lack of external contributions may be precluding the creation of a robust environment for contesting ideas. In the second phase of

³ Internal or external affiliations were determined by contributor profiles on the AARC website, or by the author biography section in the article, where available. Authors were considered internal to the Army where they had a rank listed or were known to be affiliated with the AARC from their profile. External authors were typically affiliated with a university, but also had affiliations with the Royal Australian Navy, the Royal Australian Air Force, and other militaries internationally. Some affiliations were determined via a Google search where there was an author listed but no affiliation. For 18 authors, no affiliation information was found online.

the innovation process (Create and Share), critical analysis, discussion and initial testing of ideas—potentially against each other, if not against currently held principles and ideas—has the potential to fall short if only people from the same organisation are contributing.

Furthermore, examining the *LPF* in particular, a large proportion of contributors had some affiliation with the AARC, with relatively few contributions from outside of the organisation. If the AARC is looking to augment its role in consolidation and facilitation of Army-related research rather than its production,⁴ what are the implications of this finding for maintaining a dynamic Army discourse? If contributions from external writers increased, would the activities of the AARC change? The predominance of AARC-affiliated contributors should also prompt inquiry as to the extent to which these authors are shaping the discourse across all AARC publications and whether the *LPF* accurately reflects the broader Army discourse. This may be important for how the AARC is perceived. It is in its interests to encourage external contributions in order to avoid the appearance of being subjective, but also to limit the possibility of groupthink.

The reasons for relatively limited active engagement in these fora by the rest of the Army requires further interrogation. We have been informed that there is a perception that the *AAJ* and *LPF* are considered “elite”⁵ which may deter contributions from the broader Army community, and particularly the lower ranks. In our analysis, we found that contributions are largely from higher ranking Army personnel, particularly in the case of the *AAJ*. An initial scan of other Army-related fora, including The Cove and Grounded Curiosity,⁶ which are more focused on “ground-up innovation”,⁷ shows greater levels of engagement.⁸

Authors publishing multiple contributions, particularly for the *LPF*, may demonstrate strong interest in a particular topic or indicate that certain contributors are in a position or stage in their career where they have the space and incentive to publish. Because of its lower bar for entry, the *LPF* is also a convenient forum for developing an online portfolio and expanding networks, where career-focused contributors can “place their ideas directly in the hands of those who are expected to lead Army’s preparations for the future”.⁹

Investigation into the significance of the above findings pertaining to the male to female ratio for contributions across the different data sources would be important to establish whether they reflect the general army statistics or not.¹⁰ If they do not, further interrogation of the numbers, and their context, would be required. This research direction may well be enriched by analysis of the kinds of topics and ideas men and women write about, and how they might diverge or converge.

The numbers of articles with unknown authors in each of the publication modes are also significant. As each is publicly available, author name and affiliation are vital for

⁴ Private communication with AARC staff, November 2020.

⁵ Private communication with AARC staff, November 2020.

⁶ While Grounded Curiosity is not an official Army forum, there appears to be a high level of engagement from Army personnel.

⁷ The Cove, “About The Cove,” webpage, undated.

⁸ For example, over 1,300 articles appeared on The Cove between 2016 and 11 November 2020 (239 in 2020). While a proportion of these posts are videos or links to articles posted elsewhere, this number compares favourably with the 256 posts published on *LPF* since 2014 (85 in 2020).

⁹ David Beaumont, “Pulling Forward the Future—Welcome to the Land Power Forum 2020,” *Land Power Forum Blog*, 21 February 2020.

¹⁰ Women represent 15.8 percent of the army workforce according to the Army’s “Total Workforce Pocket Brief.”

credibility, accountability and transparency. Certainly, the inclusion of articles by unknown authors is not consistent with other professional and academic journals. Academic journals are considered prestigious because they deliver superior quality research and present it with professionalism and integrity. Pieces of research can only be used in a very limited way unless the author's name and affiliation are provided, regardless of the quality/usefulness of the idea or data. Indeed, a work must, at the very least, articulate its purpose and have an endorsement, whether it is a single or collective effort.

Future Research

In the first instance, the quantitative findings here might be compared with a similar analysis of other Army-related sources, official and unofficial, as was suggested above for the keyness analysis. However, the range of questions posed throughout the preceding observations could form the basis for a variety of further research and investigation, whether the quantitative analysis is consistent with other sources or not. These include research to determine whether there are significant implications from, for example, an imbalance between internal and external contributors, male and female contributors or AARC affiliates and others contributing to the LPF. As is suggested above, this may require research into what constitutes a dynamic discourse in any organisation, assuming that is what is required and whether an increased proportionate number of external contributors to an organisations discourse does change its activities in a positive manner.

Data and Methods—Articles by Rank

From initial findings and observations, and particularly the postulation that certain contributors may be more motivated to contribute given their position, experience, or simply greater capacity to write, it was determined that the identification of the rank of the internal (Army) contributors might prove insightful.

Initial Findings

A breakdown of authors by military ranks is shown in Table 5.2. Eight people are represented twice as they contributed to multiple articles and received a promotion of ranks between publications.

Observations

As can be observed, there is a high concentration of contributions for the ranks of CAPT, MAJ and LTCOL. These ranks are associated on average with 5, 10 and 15 years of service, respectively.¹¹ These numbers represent very low proportions of the total number of people

¹¹ Data taken from both the U.S. Army and Australian Army. See Operation Military Kids, "Army Promotion Timeline for Enlisted & Officers," webpage, 27 July 2020; and Australian Army, "Commissioned Officer Ranks," webpage, undated b.

Table 5.2
Rank Breakdown for Authors

Rank	N
LTGEN	2
MAJGEN	7
BRIG	7
COL	11
LTCOL	30
MAJ	33
CAPT	28
LT	9
Non-commissioned rank	4
Internal without rank	26
External with rank	11
External without rank	135
Affiliation unknown	18

at that rank at any one time.¹² However, it is understood within the Army that these ranks offer the time and opportunity to undertake further professional training at the postgraduate level.¹³ It is surmised that while undertaking this study and/or as part of the requirements for obtaining the qualification, attendees are provided the space to think and write about issues of importance to the Army and have a higher propensity to contribute articles.

Through publication of their research, authors are also shaping the broader discourse. While publications do not reflect the totality of thoughts and opinions of those in the same rank as their authors, if significant proportions of certain ranks are writing and publishing on similar ideas or topic areas, those ideas should be highlighted as important for the future of the Army (cognisant of the possibility that convergence could also reflect a certain type of training at the Australian Defence College).

Moreover, given the philosophy of the Australian Defence College to “deliver the intellectual edge for our future force” and its undertaking to “produce intellectually resourceful military leaders”,¹⁴ what those officers choose to write about and publish may well become significant as they grow into future leadership roles, particularly if an individual resolutely pursues a particular idea and drives it through the innovation process themselves. This speaks to the importance of individuals’ impact on the Contest of Ideas. Tipping points for ideas may arise from quantity or convergence, but also quality and persistence.

¹² These numbers represent approximately 4.2 percent, 1.8 percent and 1.6 percent of the LTCOL, MAJ and CAPT ranks, respectively, using current (June 2020) force numbers taken from the Army’s “Total Workforce Pocket Brief.”

¹³ Private communication with AARC staff, November 2020.

¹⁴ Australian Defence College, “About Us,” webpage, undated.

Future Research

The significance of these findings may be better understood through further interrogation of who is generating the ideas, where contributors are when they write their articles (e.g., at Staff College, working in Army Headquarters, etc.), where they choose to publish their work, and why. If the number of contributors is representative of a cohort of Defence College attendees at any one time, then how important/influential this formal training is for shaping ideas, and how significant the associated networks for transmission are, and how those ideas are developed should be investigated. This kind of analysis would also be enriched by an examination of whether contributors are promoted, or have left the Army, and how this affects the maturation of ideas through the innovation flow. A related area for research may be an assessment of how the Army is capitalising on formal training courses from a Contest of Ideas perspective.

RAND-Lex Stance Analysis

Data and Methods

Stance analysis is useful to statistically describe how ideas in texts are framed and represented through the language which is used. This type of analysis compares two corpora (a target corpus vs a baseline corpus) to determine whether the use of particular groups of words associated with stance (e.g., emotions, values, certainty) is significantly different. Stance analysis uses collections of words compiled to reflect different stance categories, which include dialogue cues (e.g., “she said”, “replied”) and positive or negative emotive language. For each stance category, words from these collections are identified and the usage of these words in the target and baseline corpora is compared for statistical difference, using Tukey’s honest significant difference test.¹ Effect size is quantified with Cohen’s distance.² A Cohen’s distance of less than 0.2 is considered trivial, one of 0.8 is considered large, and one greater than 1.2 is considered very large.

We used the Freiburg-Brown (FROWN) corpus³ as a baseline for comparison to the AARC publications. FROWN is a standard corpus assembled by linguists to be representative of American English and consists of 500 formally written text samples sourced from a range of genres, including journalism and fiction.

Similar to the keyness testing described above, ARS works were excluded from stance analysis. Even though there was only a small number of reports, their relatively large size (in excess of 10,000 words) had a disproportionate effect on the results. That is, rather than the analysis reflecting the stance of the more popular *LPF* and *AAJ* content, it reflected predominantly the ARS research reports.

Initial Findings

Results of the stance analysis showed several differences between the AARC publications and the FROWN corpus, with large effect sizes. Initial investigation led us to conclude that most of these findings could be rationalised, given the types of publications the AARC produces. As noted above, FROWN includes text with dialogue and narrative. We would

¹ H. Abdi and L. J. Williams, “Tukey’s Honestly Significant Difference (HSD) Test,” in N. J. Salkind, ed., *Encyclopedia of Research Design*, Thousand Oaks, Calif.: SAGE, 2010.

² Jacob Cohen, *Statistical Power Analysis for the Behavioral Sciences*, New York: Routledge, 1988; and S. Sawilowsky, “New Effect Size Rules of Thumb,” *Journal of Modern Applied Statistical Methods*, Vol. 8, No. 2 (2009).

³ VARIENG—The Research Unit for Variation, Contacts and Change in English, “The Freiburg-Brown Corpus of American English (Frown),” webpage, undated.

Figure 6.1
Public Virtue of the AARC Work (Excluding ARS), 2014–2020

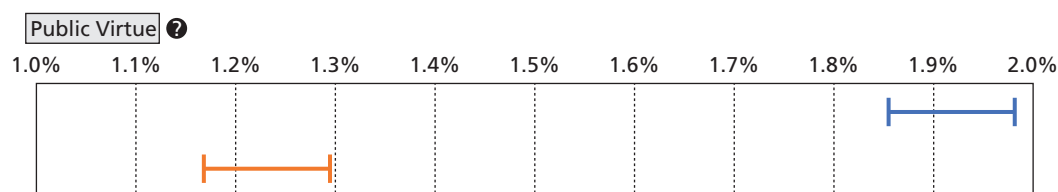
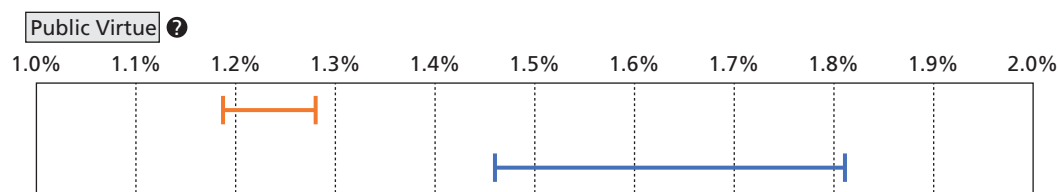


Figure 6.2
Public Virtue AAJ, 1999–2013



expect the AARC publications to have very little in terms of dialogue cues or emotive language. However, findings for the Public Virtue stance category stood out as significant.

Public Virtue

The Public Virtue stance category includes words which are considered as standards to uphold and champion, and words associated with public standards that most audiences believe in (e.g., justice, happiness, goodness and fairness). The distribution of the usage of Public Virtue words is shown in Figure 6.1. Orange represents FROWN, while blue represents the AARC work.

The 2014–2020 AARC work showed a large increase in use of Public Virtue words compared with FROWN, with a Cohen's distance of 1.02.

To examine whether this was a new phenomenon present only in more recent work, we repeated the analysis, comparing FROWN to *AAJ* articles published between 1999 and 2013 (the *LPF* was established after this period). Results are shown in Figure 6.2; as above, orange represents FROWN, while blue represents *AAJ* articles.

Previous work published in 1999–2013 also showed a large increase in use of Public Virtue words compared with FROWN, with a Cohen's distance of 0.82, although comparatively this increase is not as large as with 2014–2020 works. The distribution in usage of Public Virtue words is also larger.

Observations

These findings raise several points worthy of consideration. How the Army writes about itself suggests that there are certain assumptions it makes about public perception and self-perception, whether deliberate or subconscious.⁴ Increased usage of words associated

⁴ It is acknowledged that the FROWN corpus comprising American English may miss some of the idioms associated with Australian English; however, the observed large differences are still deemed statistically significant to require explanation.

with public virtue across the whole period investigated (1999–2020) compared with the FROWN corpus suggests that there is a distinctive lexicon which has been inculcated across the institution around service, duty and social responsibility, and doing the “right” thing. In general discourse, the need to present things in a virtuous manner is less important.

The increase in the recent period (2014–2020) suggests that there has been an additional shift that has affected the Army’s language and discourse, however. The reasons for this will be manifold, but there are some trends, both internal and external, that are significant. The rise of social media, how quickly written work can be published and disseminated, and how broadly and unrestrictedly it is circulated may have resulted in a sanitised approach to public writing. Increased emphasis on public virtue may also reflect a collective response to more public scrutiny of the institution, particularly if the media is concerned with exposing controversial and provocative elements of military culture.

The concern is that the above trajectories will continue, and discursive norms will be established that do not include public self-critique. Moreover, adoption of a lexicon strongly associated with public virtue may have an impact on both authorship and readership. The need to express things in a virtuous manner may limit the kinds of ideas and perspectives authors are willing to write about. This predisposition may also become a barrier to engaging a broad readership and/or critical engagement. All these factors have the potential to undermine the first formative steps towards contesting ideas within the Create and Share phase of the innovation flow.

Future Research

Recognising that the *LPF* and the *AAJ* are geared towards slightly different audiences, assume different levels of formality, and have different publication requirements, an analysis comparing those publications over the period 2014–2020 may yield interesting results.

Due to the limited scope and timeframe of this project, we have not established whether increased usage of words associated with public virtue is unique to the Army. Further interrogation into other military journals, especially those of the U.S., British and Canadian Armies which have a strong collaborative relationship with the Australian Army, may yield comparable results.⁵

⁵ For example, the American, British, Canadian, Australian Armies’ Program (which also invites the New Zealand Army to participate) is the premier interoperability forum between these allies to inform current and future operations.

Longitudinal Study

The *AAJ* commenced publication in 1948 but became defunct in 1976. It was revitalised in 1999, however, and continues to this day. From a comparison of the number of articles that appeared in the *AAJ* and *LPF* over the period 2014–2020, it appears that the *LPF* is the “forum of choice” for expressing ideas. However, a quick examination of the *AAJ* article numbers since the 1999 revitalization indicates that historically the *AAJ* published significantly more articles. In addition, a number of the issues since 1999 have been based around a theme, such as

- Counterinsurgency (Vol. 5, No. 2 [2008])
- The Adaptive Army (Vol. 6, No. 3 [2009])
- Culture (Vol. 10, No. 3 [2013])
- Cyberwarfare (Vol. 14, No. 2 [2018])
- Army in Motion (Vol. 14, No. 3 [2018]).

Therefore, opportunity was taken to examine the journal and the articles published therein over an extended period. For this longitudinal study, *AAJ* articles dating from 1999 to 2020 were analysed. Both quantitative and thematic analyses were undertaken.

Data and Methods

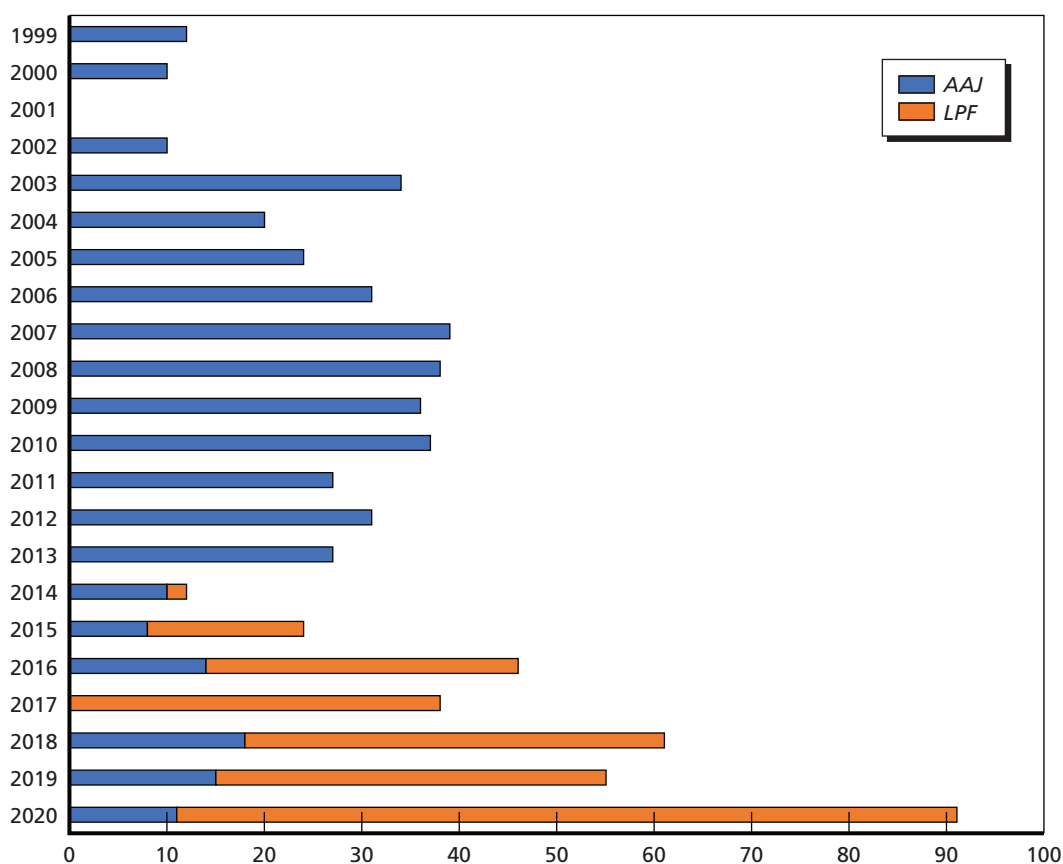
A quantitative analysis was undertaken first. Here, only the articles that related to research were counted, meaning book reviews, opinion pieces and introductory forewords were not included. Some, but not all, annual volumes have multiple issues, and so the article totals in Figure 7.1 are those of each volume. A simple column chart was used to display the changing numbers over time (Figure 7.1). The total number of *LPF* blog posts is included for comparison.

For the thematic analysis, articles leading up to and around the special issues were examined to determine why such an issue occurred at that time. For this, titles and abstracts were examined to distil the central idea of articles. During this process, the number of articles, their authors and their rank was also noted, much in the same way as discussed earlier.

Initial Findings—Numbers of Articles

As Figure 7.1 indicates, in the first few years of this period (1999–2002) the annual number of *AAJ* articles was comparable to those published during 2014–2018. However, from 2003 until 2013 the number of articles increased substantially, and the *AAJ* was producing a number of issues per annual volume during that period.

Figure 7.1
Articles Published in *AAJ* (1999–2020) with *LPF* Blog Posts (2014–2020) for Comparison



Following a period of consistently high publication between 2003 and 2013, the number of articles published drops to an average of 12 articles per year from 2014 (excluding 2017, when there were no issues, and 2018, when the high number was due to the publication of the proceedings of the Chief of Army's Land Forces Seminar). Coincidentally (or perhaps not), the *LPF* started in 2014, with the number of blog posts increasing steadily until 2020, when a dramatic increase in posts occurred.¹

Observations—Numbers of Articles

The introduction of the *LPF* in 2014 was part of a general rise in military blogging internationally at that time. Its creation has had a significant impact on the orientation of the AARC's publications. Our findings suggest that increasingly contributors are choosing to publish in the *LPF* rather than the *AAJ*.

In terms of ideas and innovation, this trend reflects the growth of opinion over substantiated claims and rigorous analysis, and an imbalance between raw ideas (those that are untested) and mature ideas (those that have been contested and substantiated). *LPF* blog posts do not require evidence for claims beyond the inclusion of hyperlinks, usually to secondary sources, and there is no requirement for articulation/demonstration of method.

¹ In 2017 Twitter and *LPF* were briefly shut down (private communication with AARC staff, November 2020).

Nor is there any significant debate on the platform as comment fields are largely left empty, and the ideas presented are quickly superseded by those offered in newer posts. The Army appears to be increasingly conducting its discourse on a platform that is transient and fragmented, one where the ideas are untested and largely future focused.

As noted previously, in 2017 there were no issues of the *AAJ* published. The reasons for this are not immediately obvious; however, we note that in mid-2016 the Land Warfare Studies Centre was rebadged as the AARC, and its research capability was drawn into Army Headquarters.^{2,3} This change also appears to have affected the capacity of the centre to deliver journal issues that year.

Initial Findings—Thematic Analysis

Initially the analysis focused in and around the special issues of the *AAJ*. Each special issue was determined to represent a theme: a culmination, consolidation or realisation of ideas that had pervaded journal articles to that point. Given this premise, journal articles preceding each special issue were examined to determine what the contributing ideas were and if there was any evidence of an ongoing contest. This is consistent with the final phase of the innovation flow (Prototype and Realise Ideas).

As there were only four special *AAJ* issues, the topics of papers within the *AAJ*, in the absence of special issues, over different time periods were examined to determine whether there were similar, consistent underlying themes.

The results are shown in Figure 7.2. Under each theme is listed a number of ideas (collected from papers in the preceding *AAJ* issues) that contributed to it. Also listed is the timeframe over which these ideas originated and persisted. Finally, it is interesting to map the tenure of the serving Chief of Army against the timelines of these themes (Table 7.1). It was discovered that each Chief of Army personally contributed a number of key documents through their tenure and certainly in each of the special issues. To better explain how the analysis was conducted a more detailed discussion pertaining to the “Counterinsurgency” issue is presented next. This analysis was informed by existing knowledge held by researchers involved in this work relating to the issues and concerns of the Army and national and international events over the period 1999–2014.

Counterinsurgency

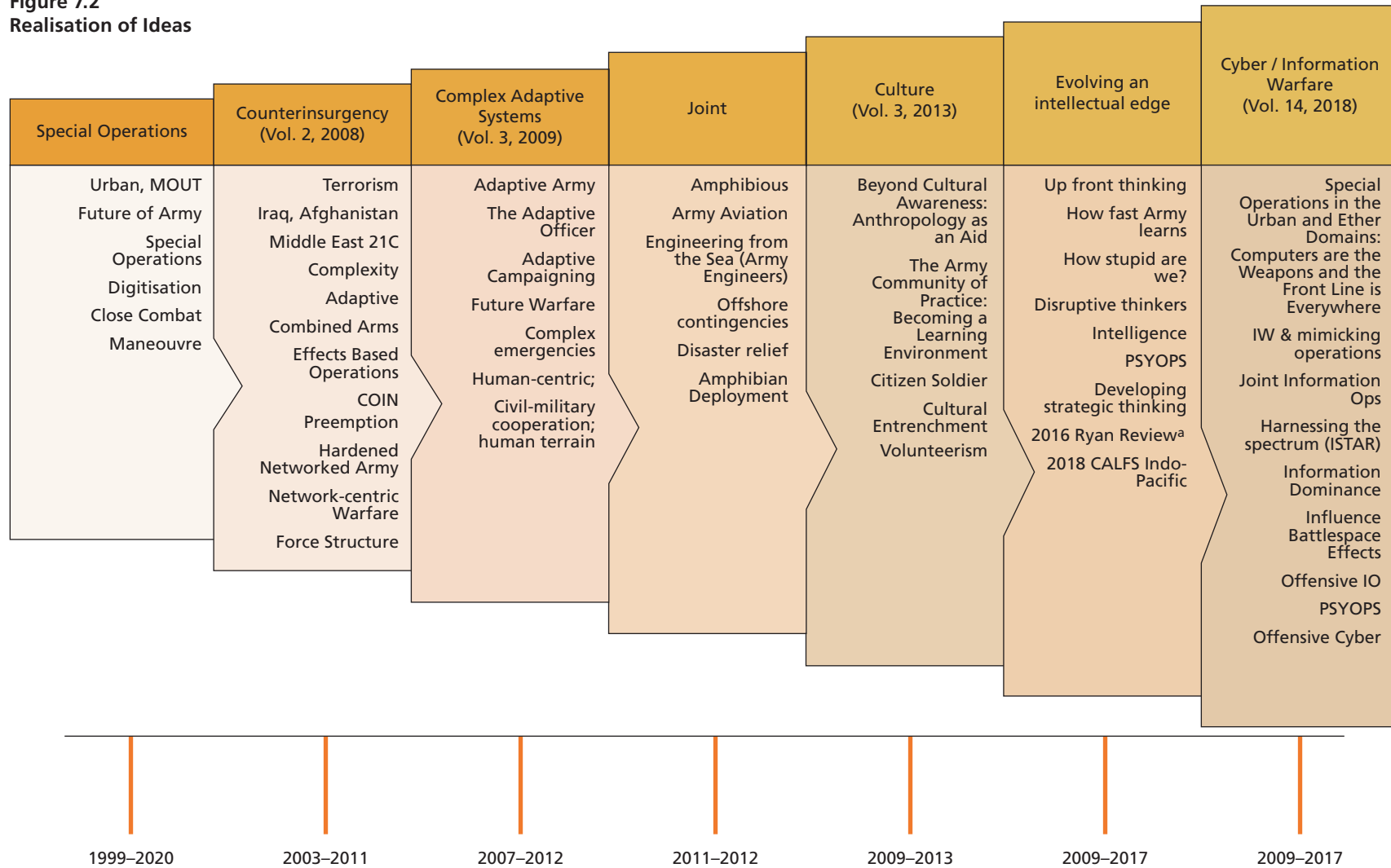
LTGEN Peter Leahy was appointed to Chief of Army in June 2002. In the first issue of the *AAJ* for 2003 he authored an article entitled “A Land Force for the Future: The Australian Army in the Early 21st Century”. In the same issue, other articles included “Rethinking the Basis of Infantry Close Combat” by LTCOL David Kilcullen and “Lest We Forget: Combined Arms Assault in Complex Terrain” by LTCOL Michael Krause, among others on the Middle East and terrorism. All these articles reflect on the changing roles of the Army, given the increasing challenges across a complex spectrum of operations. This of course was in a time in which the repercussions of the September 11 terrorist attacks on the United States were still playing out.

In the subsequent 2003 issue, Lieutenant Colonel Kilcullen responded to the initial article by his peer Lieutenant Colonel Krause with an article entitled “The Essential

² Private communication with AARC staff, November 2020.

³ Interestingly, the Land Warfare Studies Centre had been excised from Army Headquarters in 1997 and turned into an independent think tank; it was even relocated from the Russell Offices to the Royal Military College, Duntroon.

Figure 7.2
Realisation of Ideas



^a This paper was published as an occasional paper, not in an AAJ issue. It is included as the Review focussed on "Evolving an intellectual edge."

Table 7.1
Chiefs of the Australian Army, 2000–Present

Number	Name	Took Office	Left Office
35	LTGEN Peter Cosgrove	16 July 2000	27 June 2002
36	LTGEN Peter Leahy	28 June 2002	3 July 2008
37	LTGEN Ken Gillespie	4 July 2008	24 June 2011
38	LTGEN David Morrison	25 June 2011	15 May 2015
39	LTGEN Angus Campbell	16 May 2015	2 July 2018
40	LTGEN Rick Burr	2 July 2018	Incumbent

Debate: Combined Arms and the Close Battle in Complex Terrain”, deliberately reusing and thus highlighting key ideas of combined arms, close battle and complex terrain. Following this in 2004, another article by Lieutenant Colonel Kilcullen appears, this time written with BG Justin Kelly, entitled “Effects-Based Operations: A Critique”. This was published alongside an article that talks about the application of the same: “The Dimensions of Effects-Based Operations: A View from Singapore” by LT Joshua How. Examination of these articles reveals that the Army was searching for a new or more definitive way to conduct operations in the Middle East.

Concurrently, on the basis of discussions around network-centric warfare that had been ongoing since 2002, as well as debates about the hardening of the Army⁴ given its changing and increased role as an expeditionary force, the Chief of Army (again LTGEN Peter Leahy) published in 2004 an article entitled “Towards the Hardened and Networked Army”. This was to ensure the Army had the capability and capacity to deal with the increase in demand for its services, even if it had not determined the exact way in which to conduct operations. Supporting these ideas was the Chief of the Defence Force, GEN Peter Cosgrove, who authored the 2003 article “Racing Towards the Future: Reflections on Iraq, the Art of Command and Network-Centric Warfare”.

In the subsequent issues through 2005 and 2006, “Iraq”, “Afghan”, “terrorism”, “complexity” and “combined arms” continue to feature heavily across articles, highlighting how events and conflict in Iraq were playing out and reflecting on what was being done by a range of other nations.⁵ In 2007, LTCOL Mick Ryan authored two articles: “The Other Side of the COIN:⁶ Reconstruction Operations in Southern Afghanistan” and “Implementing an Adaptive Approach in Non-Kinetic Counterinsurgency Operations”. In hindsight, when these articles are examined, it is evident that the Army was searching for a way to approach operations in Iraq and Afghanistan. The second issue of the *AAJ* in 2008, centred on the theme of “Counterinsurgency”, does appear to be presented as a panacea for the preceding conjecture and discourse (presented in the *AAJ* issues), recognising that they were fighting insurgents and thus needed to conduct counterinsurgency. Figure 7.3 presents an

⁴ See, for example, John Hutcheson, “A Shield for a Hardened Army: The Infantry Mobility Vehicle and the Concept of a Motorised Battle Group,” *Australian Army Journal*, Vol. 1, No. 2 (2003).

⁵ See, for example, John Simeoni, “US Marine Urban Combined-Arms Operations in Iraq: Some Observations,” *Australian Army Journal*, Vol. 2, No. 2 (2004); Graeme Sligo, “The British and the Making of Modern Iraq,” *Australian Army Journal*, Vol. 2, No. 2 (2004); and Bryan Dorn, “New Zealand Civil-Military Affairs Experience in Afghanistan,” *Australian Army Journal*, Vol. 3, No. 3 (2006).

⁶ COIN is short for counterinsurgency.

Figure 7.3
Counterinsurgency Flow of Ideas

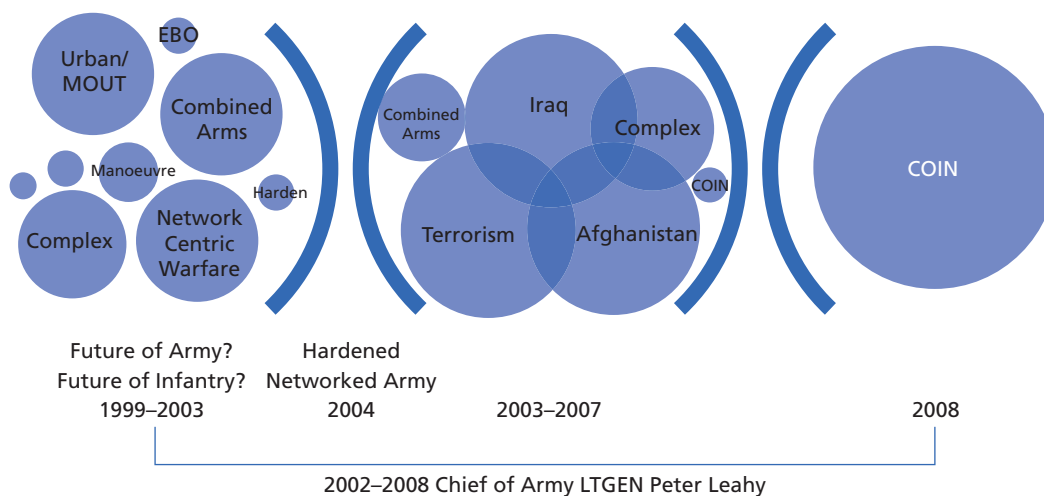


illustration of this flow of ideas, listing the salient words. The size of the circles represents the words' prevalence over the stated period of time.

Observations

Within the *AAJ*, a flow of discussion around ideas can be identified. Key indicators are special issues and the topics of each Chief of Army's contributed articles. While a range of other authors do contribute to the ongoing discourse, the Chief of Army's role here is seen as critical. Indeed, other themes, outside of those presented in the special issues, can also be discerned in the Chiefs' contributions.⁷ The *AAJ*, even with this limited timeframe, provides a valuable memorial to what was important to the Army at the time, and how the Chiefs of Army each responded to this in turn. This alone provides evidence for a more detailed study into the role of leadership in innovation. That said, it is acknowledged that surrounding any Chief is a virtuous circle of staff who are involved in discussions pertinent to the generation and critique of ideas.

In 2018, the current Chief of Army, LTGEN Rick Burr, convened his first Land Forces Seminar around the theme "The Application of Land Power in the Indo-Pacific". The Chief referenced the Army's Futures Statement "Accelerated Warfare" in his opening address.⁸ However, the proceedings of the seminar published in the "Army in Motion" special issue of the *AAJ* in the same year are more focused on the Indo-Pacific and the emerging challenges in this region rather than discourse around accelerated warfare. As already noted, Accelerated Warfare is very commonly discussed in the *LPF*. However, articles on the *LPF* appear predominantly as blog posts. Therefore, at this point in time, robust, evidence-based discourse to draw out the implications of Accelerated Warfare, similar to that seen in the *AAJ* concerning previous Chiefs' statements, is still to emerge.

⁷ Examples here involve papers that contribute to the identification of the themes "Joint" and "Evolving an Intellectual Edge" as listed in Figure 7.2, for example.

⁸ Rick Burr, "The Application of Land Power in the Indo-Pacific," *Australian Army Journal*, Vol. 14, No. 3 (2018). See Australian Army, "Accelerated Warfare: Futures Statement for an *Army in Motion*," undated a.

It is also unclear at this point in time how long *LPF* blogs are kept, and how readily they may be accessed in future years. Thus, the archiving of these blog posts with an eye on future interrogation need to be explored, which would provide an enduring record of the discourse on Accelerated Warfare, especially given the strong preference for using this type of media.

Future Research

Given the impact the *AAJ* has in articulating the Army's thinking and previous ideas, more consideration should be given to how information published on *LPF* as blog posts can be distilled and used to inform further research into emerging ideas and presented as more substantial articles in the *AAJ*.

Additional interrogation of existing holdings may also reveal deeper insights into currently emerging ideas. For example, in 2002, Jim Truscott wrote an article entitled "Special Operations in the Urban and Ether Domains: Computers Are the Weapons and the Front Line Is Everywhere". Even with its dated language, this article is eerily predictive of how the cyber domain is being considered today. Others, such as "The Impact of Digitisation on the Australian Army" published in 2000 by Colonel Goodyer, consider the impact future technologies may have on warfighting. As such, the content remains relevant today, if not more so than when it was written. Linking such "technology" descriptions to the relevant popular topics on the *LPF* may prove fruitful.

Further Work

Listed in each of the analysis sections are suggestions for further or future research. Presented here are the priority areas that would provide additional information and evidence to develop the strategic management framework discussed in this chapter.

Keyness Testing of Other Army Sources

To evaluate the significance of keyness testing findings in the context of the broader Army discourse, they should be looked at against a similar analysis of other Army-related sources, official and unofficial. As discussed above, *The Cove*, with its more popular readership, may be particularly useful to examine. Examination of the entire *AAJ* collection and further Land Warfare Studies Centre works should also be included to determine whether findings or trends observed for the 2014–2020 period are unique or otherwise.

Interrogation of military journals of other contemporary armies would establish how comparable Australian Army thinking and discourse is among its Western peers, such as the United States, British and Canadian Armies, or other armies which Australia may be looking to forge stronger relationships with, such as the Singaporean, Indonesian or Japanese forces.

Determination of the Role of the ASFA Framework

While this framework is being reviewed, opportunity exists to determine its ongoing role in the strategic management of the different Army sources. Currently it is formulated in terms of areas of interest without necessarily taking stock of whether those interests are new or have been expressed before. Whether they ought to be associated more strongly with problems that need to be addressed should be examined. If this comprises even just part of how the framework is shaped, it would increase the impact of research undertaken within it.

Who Is Generating the Ideas?

Establishing where contributors were when they wrote their articles, where they chose to publish their work and why will improve understanding of the maturation of ideas from an innovation flow perspective and also inform a number of other initiatives within the Army, such as training. The impact that networks established in one environment, such as training, have on the associated networks necessary for the transmission, communication and contest of ideas in another could also be investigated.

Finally, it would be useful to examine differences in contribution between cohorts. Here we identified a substantial difference in the quantity of contributions by male and female authors, not consistent with general Army gender representation.¹ Causes for this disparity, and whether it extends to the kinds of topics and ideas men and women write about, should be investigated.

¹ Women represent 15.8 percent of the Army workforce according to the Army's "Total Workforce Pocket Brief."

Summary and Conclusions

Our analysis of the AARC's holdings has demonstrated a considerable production of ideas through different fora. The AARC appears to be in the first phase of the innovation process presented in Chapter 1, investing in intellectual discovery and exploration, and generating ideas within these fora with a view to delivering diverse and unconstrained thinking. This study's analyses of the various modes of publication have highlighted that each has distinctive characteristics that make them more suited to particular kinds of topics and ideas at different levels of maturity. This is important for understanding how to progress ideas through the innovation process.

As the various modes of publication have unique roles, strengths and weaknesses, there is utility and value in managing the sources strategically such that they support and sustain each other and act in complementarity. The importance of managing and driving this process is amplified in the modern publishing environment, and in the specific context of the rise of military blogging, as reflected in the steady growth of contributions to the *LPF* over the *AAJ*. Where the *AAJ* has traditionally been the primary form of intellectual communication and debate, the introduction of the *LPF* has meant that there has been a marked shift in where, how, and at what level the Army conducts its discourse, at least within AARC publications. The recent trend towards blogging may well result in an imbalance between raw and tested ideas, which will have significant implications for the utility of those ideas.

Understanding the individual roles of the publications and what they represent is crucial. It appears that they have, to some extent, evolved organically rather than by design. Based on our analysis, we suggest that the *LPF*, which we have identified as a platform for the generation of raw or untested ideas, embodies to some extent the first phase of the innovation flow, the generation of the ideas to be pushed through the innovation process.

The *AAJ* represents a much more mature stage of the innovation flow. As per the standards of academic and professional journal publication, articles must include a substantive evidence base and a tested and transparent process of objective and methodological scrutiny. The method by which articles are selected or rejected, reviewed and/or amended before publication reflects a process of contestability and consideration to which other publications, and the ideas therein, are not subjected. Indeed, in its capacity as the premier professional publication of the Army, the *AAJ* has historically also captured the final phase of the innovation flow. It shows a consolidation of ideas over an extended period, and is critically supported, through contribution to the journal, by the Chief of Army.

ARS reports are where many unique ideas are represented as they are largely conducted by external providers and are of a specialised nature. The ARS is also where specific questions or ideas can be targeted or commissioned as needed, and it appears to be underutilised in this area. Strategic management of the AARC's publication portfolio would include setting the ARS up for greater impact, which should include a review of the role

of the ASFA framework used for formulating ARS questions. As we understand, that the ASFA is currently under review, the AARC should be involved in this process to ensure that any revised framework is structured to identify and fill research gaps more effectively and can also be used to measure impact. Here, it is suggested that capture of context around decisionmaking processes associated with both the articulation of questions and selection of successful contracts is important.

Strategic management would also involve coordination of the AARC's internal sources with those that are managed externally within Defence, including (but not limited to) The Cove, Grounded Curiosity, The Forge, and Logistics in War. An important part of developing a strategic framework is determining how the AARC's publications could work with, and capitalise on, what is being done on other platforms. The intention would not be to undermine those resources but to create fruitful links with them, and to take advantage of what they offer.

Effective management across and beyond the AARC catalogue relies on the provision of high-quality data. For data to have optimal utility, whether for future research or in accurate record-keeping, it needs to be complete, consistent and accessible. For example, in its current format, *AJ* articles are not readily searchable and are difficult to navigate, which may be ameliorated by separation of the articles within each issue. Ensuring that data are properly managed and archived is also important in terms of transparency, accountability, confidentiality and facilitating greater control over information processes.

Each course of action recommended here speaks not only to the future role and identity of the AARC, but also to demonstrating that the Army is indeed pursuing an intellectual edge and investing in its intellectual capital. While we have only focused on publications and developed an initial understanding of their impact, it can be readily concluded that driving and managing the innovation flow of ideas through the more mature phases requires leadership. Here, the AARC may need to assume a greater role as a central facilitator of research, which would include effective management of sources and development of purposeful and productive networks. The AARC may also need to assume a greater role in driving ideas through to at least the next phase of innovation to ensure that ideas begin to be contested through a process of creating and sharing that ultimately effects positive change in the Army. Creativity does not automatically lead to innovation, and often good ideas fail as those that create often think that their job is done at this point—that it is up to someone else to work out the details and implement the proposals. Alternatively, the AARC may choose to adopt the role of curator of the innovation process, collecting evidence to demonstrate how ideas manifest in positive change (or otherwise) in the Army and thereby supporting future innovation efforts.

Leading Article Contributors

Table A.1
Authors Who Contributed Five or More Articles

Name	N Articles Contributed	AARC Affiliation	Topics of Interest
Andrew Maher	34	Y	Emerging Threats and Opportunities series on <i>LPF</i> Strategy Accelerated Warfare
David Beaumont	15	Y	Logistics Expeditionary warfare
Albert Palazzo	13	Y	Future army Land power (firepower)
Lee Hayward	13	Y	Information warfare
Greg Rowlands	11		Space warfare Future technologies Automation
Nick Bosio	9	Y	Theory of war
Charles Knight	9	Y	Urban warfare
Chris Field	9		Army innovation Book reviews
Chris Roberts	8		Book reviews
Cate Carter	8	Y	Varied, including history, theory of war, developing army personnel
Jason Trembath	8	Y	Emerging Threats and Opportunities series on <i>LPF</i>
Joyobroto Sanyal	7	Y	Security and strategy Change in the army
Jason Mazanov	7	Y	Ethics Human performance
Freya Doney	7	Y	Emerging Threats and Opportunities series on <i>LPF</i>
Duncan Foster	6	Y	Varied, including future technologies, book reviews
Mark Mankowski	5		Joint/integration
Jai Galliot	5		Cyber, autonomous systems, soldier enhancements
Chris Smith	5		Army innovation
Leon Young	5	Y	Strategic thinking, intuition

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The Australian Army prides itself on its pursuit of an intellectual edge. In his 2020 Accelerated Warfare Statement, the Chief of Army stressed the importance of an ongoing “contest of ideas” to ensure that the Army does not rest on its laurels and keeps pace with rapidly changing events and technology. Accompanying this is a call to make how this contest occurs more transparent and accessible to all those within the Army, taking advantage of the different media through which ideas can be presented.

In this report, works published between 2014 and 2020 by the Australian Army Research Centre (AARC) in a range of publications, including the *Australian Army Journal*, *Land Power Forum* blog, and Army Research Scheme reports, were analysed using a combination of methods, including numerical, categorical and thematic analysis, and RAND-Lex, a text analytics suite.

The report’s findings highlight that each of the Army’s publication modes has distinctive characteristics that makes it more suited to particular topics (e.g., future-focused or retrospective), and that each publishes ideas at different levels of maturity. Recognising the strengths of each publication mode is important for understanding how to progress ideas through the innovation flow process.

Strategic management of the Australian Army Research Centre’s publication portfolio should therefore include a review of the role of the 2017 Army Strategic Futures Agenda (ASFA) framework and the Army’s areas of interest. A revised framework could enable the more effective identification of research gaps and could also be used to measure impact.

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