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Procurement and Politics Strategies of Defence Acquisition in Canada and Australia

Andrea Migone
Alexander Howlett
Michael Howlett

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Procurement and Politics

“Given the complexity, expense and timescales involved in the government procurement of large-scale military platforms, such policy decisions deserve much more rigorous critical attention than they often receive. This timely book is a welcome addition to the existing literature. Providing thoroughly detailed comparative analysis of valuable case studies, this book more than delivers on its promise to expand our knowledge on the successes and failures of military procurement and delivers important lessons for future policy.”

—Rebecca Strating, *Director of La Trobe Asia and Associate Professor of Politics and International Relations, La Trobe University, Australia*

“An outstanding examination of one of the more challenging defence issues of democratic states - procurement. As the international system becomes more dangerous Canada and Australia must ensure that it can buy and build the armed forces that it needs. This book provides one of the very best assessments of what is going wrong and what has gone right. A must read for analysts, decision-makers, academics and the concerned public.”

—Robert Huebert, *Associate Professor in the Department of Political Science, University of Calgary, Canada*

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Introduction: Procurement and Politics— The Defence Policy Consensus or Aligning Strategy and Policy Is Necessary But Not Automatic

Abstract Large-scale military platform procurement is an essential but understudied component in policy and administrative studies. Procurement decisions in this area, which include major platforms and systems such as ships and aircraft, are very expensive and feature complex multi-actor and multi-year processes which can be highly conflictual. The extant administrative literature on the subject is of limited help: on the one hand, most procurement studies in public administration and public management focus on smaller, short-term, more routinized and less conflictual purchases. On the other hand, studies centred on military acquisitions tend to treat each major purchase as idiosyncratic. Hence, military procurement provides an excellent source of case studies to expand our knowledge and understanding of larger and more complex types of procurement processes. It allows us to draw lessons about successes and failures that will be relevant to similar expensive and large-scale purchases, such as railways, hydroelectric dams, highways and port development, while also drawing out the similarities and lessons for future defence purchases.

Keywords Policy procurement • Military procurement • Doctrinal alignment • Service doctrine • Joint forces • Armed forces • Canada • Australia • *Type 26* frigate • F-35 Lightning II Joint Strike Fighters • Defence procurement • Public administration

Large-scale military platform procurement is an essential but understudied component in policy and administrative studies. Procurement decisions in this area, which include major platforms and systems such as ships and aircraft, are very expensive and feature complex multi-actor and multi-year processes which can be highly conflictual. The extant administrative literature on the subject is of limited help: on the one hand, most procurement studies in public administration and public management focus on smaller, short-term, more routinized and less conflictual purchases. On the other hand, studies centred on military acquisitions tend to treat each major purchase as idiosyncratic. Hence, military procurement provides an excellent source of case studies to expand our knowledge and understanding of larger and more complex types of procurement process. Studying such cases allows us to draw lessons about successes and failures that are relevant to similar expensive and large-scale purchases, such as railways, hydro-electric dams, highways and port development, while also drawing out the similarities and lessons for future defence purchases.

Procurement in itself is a policy tool involving the use of government resources to achieve its aims (Hood, 1986). It is through procurement that many governmental aims and ambitions are physically implemented, from purchases of school supplies to hospital equipment and many other items and systems (Greve, 2007; Harland et al., 2007; Lember et al., 2014). We can therefore think of procurement as a policy instrument requiring detailed specifications and consistency of action to ensure that specific government goals are achieved (Hood, 1983; van den Berg et al., 2019).

Governments can use procurement for different reasons and in different ways. In addition to acquiring specific kinds of goods and services, procurement can also be used for ‘procedural’ purposes in a process sometimes referred to as ‘strategic procurement’ (Demircioglu & Audretsch, 2017) in order to promote other, broader, government goals, such as facilitating climate change adaptation through purchases of innovative technologies, to promoting gender-corrective businesses. Procurement officials thus often are not simply tasked with securing a steady and effective supply of goods and services at the lowest cost possible that will ensure the routine activity of public institutions (Rogerson, 2004), but are also engaged in areas such as supporting strategic industries (Dewes et al., 2015), enabling economic development (Rogerson, 2004) and innovation (Edquist & Hommen, 2000; Edquist & Zabala-Iturriagoitia, 2012), and may be responsible for tasks such as promoting the formation of specific kinds of industrial clusters and research and development (R&D) activities (Demircioglu & Vivona, 2021).

They can also, of course, deploy procurement in a direct, substantive fashion, targeting a specific government goal through the purchase of, for example, cost-saving buses or transportation equipment, or a more general goal such as improving government efficiency through the purchase of information technology (IT) software and hardware. While the latter uses have formed the bulk of studies into the subject, in recent years there has been heightened interest in the former, with new studies of strategic procurement processes emerging. These include, for example, the promotion of environmentally sustainable practices and products (Aragão & Jabbour, 2017; Jothi Basu et al., 2015), the use of commissioning to procure social services from the non-governmental sector (Sturgess, 2018) and examinations of how Corporate Social Responsibility, and other socially relevant principles, have made their way into public procurement contracting (Pauly & Swanson, 2017; Snider et al., 2013). Researchers have also explored how certain discriminatory practices within procurement can be changed, especially to ensure that goals, like sustainability or gender, equity or regional parity, are an integral part of these purchasing processes and outcomes (Keulemans & Van de Walle, 2017; Kono & Rickard, 2014). They have also examined related phenomena such as the ‘escalation of commitment’ when decision-makers cling to, and continue to invest in, failed projects (Berente et al., 2022).

Simply put, procurement is more than a purely formal or technical intra-agency bureaucratic purchasing process; it requires that the public administrations engage in complex and often overlapping policy, political and administrative activities which may involve trade-offs, for example, between lowest price bids and higher priced ones which meet strategic goals (World Bank Group, 2016; Krause & Zarit, 2022). And, of course, procurement efforts also may fail. This happens when desired goods and services fail to be successfully procured, do so with enormous cost overruns, or are marked by processes featuring small- or large-scale corrupt practices (Flyvbjerg et al., 2022).

In this broad field, the procurement of major weapon systems, such as warships and aircraft, occupies a very specific niche. Military purchases are often a high-stakes game characterized by very high expenses and risks, relying on very large, multi-year contracts which must account for a complex life cycle extending from design to decommissioning, all amid uncertainties about the exact nature of future defence needs and technological horizons.

All types of procurement have a political component and large purchases, especially, can easily become caught up in larger political struggles (Keeble, 1997). Unfortunately, this political dimension is often

down-played or ignored altogether, both in studies that focus on small-scale, routine purchasing contracts (de Araújo et al., 2017; Harland et al., 2019), and in studies examining the procurement of more complex platforms and systems. These latter studies tend to focus on key technological shifts, analysing related policy and administrative decisions within a technological or ‘evidence-based’ framework and in the military case treat military platform decisions as largely *sui generis* with a corresponding focus on the micro-details of the procurement processes that should support this model—frequently disregarding the politics of procurement which are a major feature of such cases (Collins, 2021a).

More often than not, however, funding and political support for major defence platforms is in relatively limited supply as these expenses often clash with more pressing and day-to-day social needs and concerns of governments and their electors. That is, not only must strategic and operational military considerations synchronize in agreement on the benefits of the acquisition of a specific platform, but these military considerations need to be aligned with budget constraints as well as complex performance and accountability requirements (Caldwell & Howard, 2014; Krause & Zarit, 2021). In the former case these considerations often include ‘inter-operability’—the requirement to operate alongside members of an alliance across vast geographical spaces and potential war zones—as well as concerns around ‘proto-typing’ or the advantages and disadvantages of being among the first to use unproven, if potentially advantageous, weaponry.

Furthermore, unlike the situation with many less expensive or lower-profile purchases, all of the multiple actors engaged in large-scale military purchasing processes, ranging from public servants working in defence ministries to regional suppliers, are self-interested—as are politicians, who must consider the electoral cycle, issues of national sovereignty and calculations regarding industrial or regional ‘offsets’ when and if large contracts are assigned (King & Sekerka, 2017).

This situation is further complicated in the military case since defence markets, because of the complexity of weapons systems and because military procurement is generally excluded from free trade agreements, are typically characterized by oligopolistic or even monopolistic structures in which only a single or very few potential suppliers exist. This puts purchasers at a disadvantage and makes truly open and competitive bidding processes—the holy grail of smaller scale procurement—problematic if not impossible to achieve (Rickard & Kono, 2014; Williams, 2006).

This latter problem is magnified when suppliers are foreign and continued service and delivery cannot be guaranteed, potentially threatening future national defence and jeopardizing strategic interests. The result in the military case is often a preference for domestically designed and built products or, at least, for the domestic production of products that are designed often in collaboration with foreign companies (so-called modified off-the-shelf procurement, or MOTS).

All of these concerns and calculations often result in highly politicized defence purchasing processes that involve both cooperation and conflict among governments and administrative actors and suppliers regarding how costs, benefits, blame and success are to be apportioned across multiple dimensions and interests (Calcara, 2018, 2020). Because of these complex political-economic dynamics, states seeking to replace ageing or obsolete systems often face serious procurement challenges (Louth & Boden, 2014; L. Page, 2007) whose nature and characteristics deserve closer study and examination.

This book examines two empirical military procurement process cases in Canada and Australia—the American F-35 aircraft purchase and plans to purchase British *Type 26* frigates—through a comparative lens. Both the Royal Canadian Navy (RCN) and the Royal Australian Navy (RAN) are planning to procure derivations of the same Royal Navy *Type 26* frigate, and the book seeks to explain why to date Australia has largely succeeded in its effort to build new vessels (especially for its surface fleet), while Canada’s effort to purchase 15 similar new frigates—the largest procurement effort in Canadian history—has failed to produce a single ship after almost 30 years of planning and negotiation. The situation is very similar for the Royal Canadian Air Force (RCAF): whereas the Royal Australian Air Force (RAAF) will be one of the first countries to have a full complement of F-35 fighters, Canada’s delays and back-and-forth over its procurement approach have delayed the purchase of the F-35 by more than a decade and left most stakeholders (not least of all the RCAF) disappointed with delays and contract cancellations (Collins, 2021a; Vucetic, 2022).

The analysis is centred on these two countries because, notwithstanding some institutional, historical, and geographical differences, in general they are well suited for comparison as ‘most similar’ cases: not only did they start, more or less at the same time, needing to replace the same earlier aircraft, but both are members of the British Commonwealth, have historically been staunch supporters of western alliances centred on the United States, and share Westminster-style political regimes and administrative systems. Canada is one of the original members of the North

Atlantic Treaty Organization (NATO) and a core member of North American Aerospace Defense Command (NORAD), while Australia signed the Australia-United States (ANZUS) agreement in 1951 and is a contact nation of NATO in which it is highly integrated (Karnozov, 2020). Finally, both belong to the AUSCANNZUKUS (Australia, Canada, New Zealand, the United Kingdom, the United States) group of English-speaking democracies.

Even if Australia and Canada have generally comparable levels of military expenditure, some differences are relatively conspicuous. Australia, while demographically smaller than Canada, in 2020 had a larger defence budget of US\$27.6B, whereas Canada's was only US\$22.8B. Although for both countries we can see a trend towards higher military expenditures in the late Post-Cold War 1990s, but, when measured in terms of percentage of GDP, this has yet to result in a return to their levels of spending from the 1980s.

In 2020, 2.1% of the Australian GDP went to the Australian Defence Force (ADF), while Canada committed only 1.4% of its budget to the Canadian Armed Forces (CAF). The extra financial commitment of the Australian government represents 21% of the entire Canadian figure, or 46% more in terms of GDP percentage (see Fig. 1.1).

Despite these differences, recent successful and unsuccessful Canadian and Australian efforts to acquire a large number of similar warships to replace their equally ageing fleets, and their simultaneous procurement of the same Fifth-Generation fighter jets, the F-35, nevertheless represent a unique opportunity to study significant military procurement in two comparable countries. The fact that—despite procuring the same platforms—Canada and Australia's procurement efforts resulted in divergent outcomes is instructive to scholars studying military purchasing and to those studying large-scale procurement more generally, with respect to how differing strategic and political visions and factors influence procurement processes and outcomes.

Canadian military procurement, in particular, has often been described in the literature as fraught with partisan politics, typically suffering from serious underfunding and constantly shifting political and economic interests (Nossal, 2016; Plamondon, 2010), which have resulted in many delayed and cancelled programmes and projects, with very few purchases having met initial expectations and announcements. These processes have often lacked agreement between key users and purchasers in terms of both strategic and operational procurement considerations, and have commonly yielded long, drawn-out processes that have resulted in at times confused and piecemeal outcomes, more often than not satisfying no one (Fleurant & Quéau, 2016; Williams, 2006).

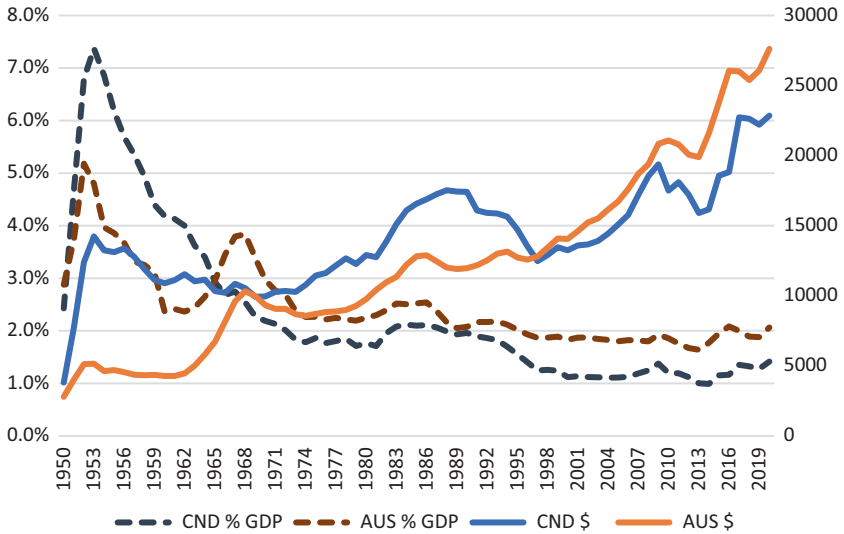


Fig. 1.1 Military spending (constant 2019 US\$ and % of GDP). (Source: SIPRI (2021))

Over the past 25 years, Canada's plans to purchase new fighter jets for the RCAF, and submarines, helicopters and vessels for the RCN, have all been hobbled by these kinds of political concerns and budget constraints (Plamondon, 2010; Hickey, 2008). Furthermore, leadership in both the military and federal government often emerge from even multi-billion dollar purchasing processes feeling shortchanged (Richter, 2013), especially when the federal government has promised (and this has transpired often and very publicly) to provide major investments—but where results are lacking. These failures have prompted strong reactions in the media, condemning existing procurement approaches and demanding that they become more transparent, efficient and effective (Gilmore, 2021). But little has been achieved, despite decades of criticism (Williams, 2006).

Canadian military procurement experts have produced a wealth of research aimed at explaining these shortcomings. Davies (2016), for example, identified a general lack of accountability for the implementation of long-term approved spending plans regarding Canadian defence contracts, further compounded by weak performance measures, as the major impediment to successful defence procurement. Collins (2018) found that how the Canadian political executive positioned itself *vis-à-vis* the procurement

process only partially explained delays, and that a fuller explanation required inclusion of more variables: notably, strategic and political concerns such as the nature of the country's military alliances, the structure of its defence procurement bureaucracy, and the relationship between politicians and the defence industry itself. Other scholars have called for a more agile model of procurement to overcome these limits, but it is unclear exactly what this would entail (Richardson et al., 2020; Williams, 2006).

In Australia, on the other hand, some critical strategic keystones laid the foundations for government administrations of different partisan persuasions actually meeting their long-standing commitments, including in terms of procurement, to the ADF.

In the Australian case, procurement, while at times facing heated discussions and costly changes in direction—notably reflected in the recent cancellation of what would have been the French-built *Attack*-class submarines (Doran, 2022)—has been able to deliver substantial modernization and capacity to the ADF both in terms of the RAN and the RAAF.

This is possible because of a strategic focus and agreement between different governments and the defence sector in Australia on the concept of 'defence in depth'—the assumption, broadly shared between the political and administrative leadership, that the country will need to be self-reliant in at least some of the defence solutions it selects due to Australia's isolated and difficult to defend geostrategic position—and on the idea that the United States represent a key long-term ally.

Underpinned by an early assessment that the end of the bipolar world order and the rise of the People's Republic of China (PRC) would make the 21st century more unstable rather than create a 'peace dividend,' the Australian approach not only unlocked more procurement successes but also led to qualitatively different results than those witnessed in Canada. These include the recent selection of nuclear submarines (SSNs) and the agreement—sought by Australia—to position US B-52 strategic bombers in the north of the country (Booth, 2022), in addition to a significant expansion of joint US-Australia intelligence-gathering efforts (Bisht, 2022).

As the detailed case studies contained herein argue, while the Australian clarity upon and bipartisan agreement on strategic defence imperatives and government-ADF alignment has resulted in a fairly coherent approach to Australian military procurement, including important investments to implement a well-defined and coherent long-term strategic and political posture, the Canadian case demonstrates the opposite: misalignment between government objectives, partisan administrations and the CAF's own doctrine which have led to a disjointed and muddled history of both delays and swings in both large and small platform procurement.

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Procuring Advanced Weapon Systems and Platforms: Four Types of Procurement Considered

Abstract Major weapon systems and platforms, by nature, tend to be extremely complex and long-term purchases, incorporating cutting edge technology that is both developmentally complex and very expensive, often only being developed as the platform is built, put into service and updated, as has often been the case with new generations of fighter aircraft and warships. It is also the case with such systems that, like a hydroelectric dam or nuclear reactor, they cannot be acquired piecemeal but must be purchased and constructed all in one piece. This complexity, high costs and the lack of severability of contracts once signed are characteristics of procurement processes that generally trigger hard-fought political battles about costs, benefits and platform choices. The chapter lays out a four-fold categorization of procurement to address these complexities.

Keywords Policy procurement • Defence procurement • Public administration • Doctrinal alignment • Canada • Australia • *Type 26* frigate • F-35 fighters • Megaprojects • Procurement strategy

If we think of procurement as a way to ensure the implementation of specific government goals, it is not far-fetched to see it as a fundamental element in the micro-calibrations of public policy that makes policy goals and

Table 2.1 The components of public policy

	<i>Macro</i>	<i>Meso</i>	<i>Micro</i>
<i>Ends</i>	Goals and paradigms	Potentially operationalizable objectives	‘Settings’ or targets for each objective
<i>Means</i>	Governance arrangements and regimes	Policy tools and instruments	‘Calibrations’ or configuration of individuals tools and instruments

Source: Modelled after Cashore and Howlett (2007); Howlett and Cashore (2009)

objectives actionable (Cashore & Howlett, 2007) (see Table 2.1). That is, procurement is fundamental in brokering the meso- and micro-levels of policy-making, ensuring that the chosen policy tools are effectively employed towards reaching policy targets. If a decision-maker wishes to successfully implement what are often lofty and abstract policy goals, successful procurement processes are necessary for this to occur.

But what are the parameters according to which procurement is successful, and when does it fail?

As the literature on procurement has shown, *successful procurement processes need to match clear objectives and targets*. These parameters must be set by the government, and on the back of this effort, specific tools and tool calibrations can be chosen and matched by the departments or agencies that will then be in charge of delivering the project (Almarri & Blackwell, 2014; Vaidya et al., 2006). *Procurement fails when this clarity of intent and alignment are not present* (Phillips et al., 2007). This is recognized in the procurement literature if departmental strategic goals and the procurement instruments do not align, then problems almost always arise (Glas et al., 2017; Patrucco et al., 2017; Plantinga et al., 2020).

The literature also suggests that issues emerging from such a misalignment of means and ends vary according to how complex and costly are the products being procured, and upon whether or not the planned purchases can be discretely reduced or terminated. As shown in Table 2.2, several procurement classes exist and those which develop over long time spans and often involve irreversible phases of development are a distinct category. In such cases severing decisions one from another may be extremely complicated, and, if path dependencies are involved, reversals may be much costlier if not impossible to make. These complex cases are thus inherently more difficult and conflict-prone than simpler one-off, low cost cases.

Table 2.2 Types of procurement

		<i>Duration</i>	
		<i>Short-term</i>	<i>Long-term</i>
Expense	<i>Low</i>	<i>Type 1</i>	<i>Type 3</i>
	<i>Cost</i>	For example, New office chairs or equipment (can be repeated)	For example, Reforestation or pension investments
	<i>High</i>	<i>Type 2</i>	<i>Type 4</i>
	<i>Cost</i>	For example, Building or railway construction	For example, Hydro-dams or armaments and armament system and platform acquisition

Source: Migone et al. (2022)

As Jacobs (2008, 2011, 2016) noted for long-term policy-making in general, long-term procurement choices are more problematic because (1) they involve the distant future, which is highly uncertain and risky while concurrently (2) extending far beyond the electoral plans and the mandate of whichever government kickstarts the process and (3) incorporate sunk costs, contracts and other variables that make them very difficult, if not impossible, to modify and sometimes even to tackle incrementally (e.g. it is impossible to convert a nuclear reactor to use other types of fuel or to build and operate it in stages).

Major weapon systems and platforms, by nature, tend to be extremely complex and long-term Type 4 purchases, incorporating cutting edge technology that is both developmentally complex and very expensive, often only being developed as the platform is built and put into service, as has often been the case with new generations of fighter aircraft and new warships. It is also the case with such systems that, like a hydroelectric dam or nuclear reactor, they cannot be acquired piecemeal but must be purchased and constructed all in one effort (Migone et al., 2023). This complexity, high costs and the lack of severability of contracts once signed are characteristics of the kinds of procurement processes that generally trigger hard-fought political battles about costs, benefits and platform choices (Hoppe, 2010; Williams, 2012).

Unfortunately, most of the literature on procurement often tackles relatively simple and low-cost Type 1 and Type 3 cases, where decisions can be walked back, or where the expenditures are small enough or are organized on a one-time or short-term basis and can be adopted incrementally. Another popular subject of study is Type 2 cases such as buildings or

airports in which large amounts are invested, but on a one-off basis, so that individual decisions can be treated and analysed as idiosyncratic processes. In all of these cases decisions are often reversible and, generally, smaller financial commitments are involved or purchases are de-composable into a sequence of steps (Erridge & Murray, 1998; Potoski, 2008; Flyvbjerg, 2007; Grimsey & Lewis, 2017; Hawkesworth & Burger, 2011). However, the literature has not focused very much on Type 4 for which few comparative studies are extant and these are often just assumed—mistakenly—to involve the same drivers and dynamics as shorter-term or lower cost types.

Occasionally, two different types of procurement may morph into another. The case studies we examine in this volume do show some attempts at dividing large Type 4 projects into sub-projects with funds allocated in an incremental fashion. This is done in the attempt to change a Type 4 procurement decision—which at a certain point incorporates concerns like sunk costs, unlike what happens for single-use, smaller cases—to become a simpler, more discrete Type 2 decision in an attempt to reduce the complexity, uncertainty, cost and conflict involved in Type 4 projects. We explore the theoretical dynamics of this model in the conclusion. Often, however, in the case of expensive, technologically complex, and time contingent projects, such as warships and fighter aircraft, this type of ‘project slicing’ is impossible, or very unlikely, since an air force or navy requires a fleet of aircraft or ships and not a single model. A similar situation exists with other civilian megaprojects, such as the construction of large hydroelectric projects in which generation, transmission and distribution systems must be built simultaneously and cannot be severed (Migone et al., 2023).

In fact, the model of indivisible, high cost, projects is generally the norm when dealing with major military platform and system purchases, including tanks, fighter aircraft and warships. Some weapons or technology, however, such as drones, firearms and logistical elements including ammunition and trucks, fall into the Type 3 category because of their relatively low cost per item. But the purchase and development of large, more complex platforms, such as warships, or extremely complex systems of systems such as Fifth-Generation fighter aircraft, on the other hand, squarely represent examples of Type 4 procurement. Serious issues and problems can emerge in these cases, which are not translatable to the other types (Aguado-Romero et al., 2013; Besselman et al., 2000; Kim et al., 2016; Louth & Boden, 2014; R. M. Page, 2007), given their unique nature and characteristics. This type of expensive, technically complex, defence

procurement thus occupies a very specific and difficult niche within the Type 4 category.

As a matter of course, not only do these decisions involve very large long-term financial commitments and occur in high-stakes, politically charged and risk-filled environments, but, furthermore, the life cycles of the technology involved are often unclear or contested, especially when the platforms or systems in question are not fully developed themselves, and contracts are spread over many years, if not decades, and are technically very complex. Finally, both political support and the financial commitments in both the shorter or longer term are often scarce or variable (Jacobs, 2016).

Since these complexities are the hallmark of much defence procurement, we should expect that political and administrative personnel across the globe have devised strategies to tackle and manage these risks, and as the case studies examined in this book demonstrate, they have. But such processes can still fail, and we will show how they can be successfully and unsuccessfully navigated after detailing the two comparative Canadian and Australian aircraft and naval ship cases.

Given the complexities described above, including multi-layered interests and the need for integration with national and international joint forces, ensuring that governments, private companies and administrators achieve the required degree of cooperation for these projects to succeed often depends on detailed political-electoral cost/benefit analyses (Calcara, 2018, 2020).

In particular, each Type 4 procurement situation provides a government with different kinds of administrative and political risks and payoffs (see Table 2.3).

Table 2.3 Type 4 procurement economic costs and political benefits

		<i>Duration</i>	
		<i>Single government term</i>	<i>Multiple government term</i>
Number of units	<i>Few</i>	Low economic costs/all political benefits to the incumbent government	Low economic costs/uncertain political benefits to originating government
	<i>Many</i>	High economic costs/all blame & any credit to the incumbent government	High economic cost/uncertain political blame and credit to the originating government

As Table 3.1 shows, originating governments seldom extract large political payoffs from Type 4 procurement processes while absorbing all the costs and therefore they often employ a variety of common strategies to try to transform them into one of the other types which enhance their ability to claim credit or avoid blame for large costs and project overruns or delays. One of the strategies that governments have employed in Type 4 situations is, perhaps counterintuitively, simply to ignore the issue and leave the expenditure decision to some future administration. This strategy usually involves ‘punting’ or ‘kicking the can down the road’ to the next government; in the field of climate change policy, for example, this is a common enough approach (Howlett, 2014).

In other cases, purchases of weapons platforms, for example, are typically not downsizable and may not be amenable to punting or to incremental processes. Thus in the case of many Type 4 cases originating governments face having to pay ‘up-front’ all of the costs, while simultaneously, given long development times inherent in weapons design, they are unlikely to reap more than a few benefits with most credit accruing to the incumbent government at the time of product delivery. Strategically, it is sometimes possible to reverse this equation by starting with prominent announcements of intended purchases, while at the same time postponing the actual acquisition. Thus, all political benefits are received up front while costs are at worst delayed and at best offloaded onto another government.

However, this strategy often cannot be extended indefinitely and, eventually, it must either result in abandoning a project or deciding on a specific course of action to follow. In some cases, this may mean trying to transform a large procurement project into a set of smaller-scale decisions that are at least partially reversible, although, as noted above, this may only be possible for Type 3 procurement cases (such as reforestation) but not when Type 4 purchases are in play. It is nevertheless sometimes possible, as we have noted, to ‘disassemble’ a large strategic procurement project into a series of interconnected incremental ones that are not only smaller in scale but also potentially reversible. While theoretically appealing, this approach is again not always feasible in the military platform case, especially if the contract for a specific weapons platform is not amenable to orders being downsized, cancelled or acquired incrementally.

Another possible Type 4 strategy entails reducing total expenses by securing revenues through some kind of industrial offset, which—for example, by involving national domestic industry in the supply chain for

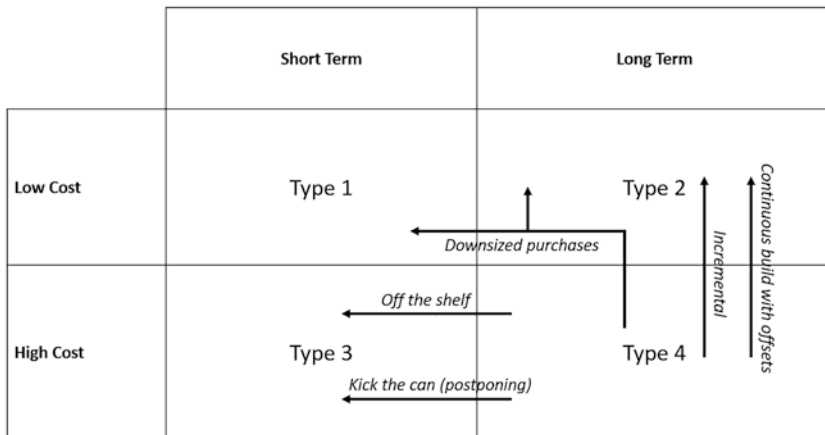


Fig. 2.1 Pathways away from Type 4 procurement problems

the weapons system in question—reduces overall costs and shifts the project towards a lower cost mode. Furthermore, governments can also sometimes simply reduce the size of their purchase, which transforms it into a Type 1 project. Finally, a sixth strategy is to purchase a platform ‘off the shelf’ which also typically lowers costs. We set out these pathways in Fig. 2.1.

2.1 THE NEED FOR ALIGNMENT OF GOVERNMENT PURCHASER AND USER AIMS IN SUCCESSFUL TYPE 4 MILITARY PROCUREMENT PROCESSES

Which if any of these strategies is adopted by a government in a Type 4 military procurement decision depends largely, we contend, on the nature of the purchase and, further, on whether or not government policy goals are ‘aligned’ or congruent with their military services’ doctrine and *vice versa* (Glas et al., 2017; Migone et al., 2022; Plantinga et al., 2020).

The cases that we present here, and the different outcomes that they yield, underscore how important this is. Successful procurement/implementation requires that governments establish a clear set of objectives and targets, which then allows for specific tools and tool calibrations to be matched by the administration *and for this congruence to be maintained over time and throughout periods when changes in government occur* (Almarri & Blackwell, 2014; Vaidya et al., 2006).

Alignment between service doctrine and government defence policy is key since without it there is zero chance of an amicable/sellable Type 4 solution, thus increasing the odds of a ‘kick the can down the road’ or even a ‘downsized purchase option’ result. With alignment, though, a successful Type 4 outcome is possible.

The fleet procurement cases set out below, in particular, highlight that while navies may have a more or less clear vision of their intended or established doctrinal roles, and of what equipment or force structure will be necessary to fulfil these roles, if national defence policy does not align with these roles (and, again, *vice versa*), then the preferred naval force structure will be unlikely to emerge in a coherent or timely fashion. In the Australian case, unlike in Canada, alignment, and government sustainment of this alignment between administrations, allowed for successful platform procurement.

This is very clear in the naval case, for example, where, doctrinally, the RCN and the RAN possess different service priorities which either did or did not match government policy goals. Throughout the temporal arc we analyse in the 1990–2020 period, the RCN saw itself as dedicated to the implementation of Canadian collective defence, and its key role in this effort being to contribute to NATO’s Anti-Submarine Warfare (ASW) capability. However, the Navy’s relative importance within the scope of Canadian national security shrank after the end of the Cold War (Collins, 2021) as government policy shifted towards peacekeeping and an emphasis on Arctic national sovereignty issues; indeed, the RCN was usually given third priority against the Army and RCAF for service funding.

The RAN, on the other hand, perceived itself as the essential guarantor of Australia’s continental defence, and, as far as government defence policy was concerned, this was supported politically, with numerous Australian government administrations repeatedly confirming the RAN’s established doctrinal role, indeed, supporting these statements with high prioritization for new construction and funding. Not only was the RCN comparatively less well-funded, but Canadian governments also came to perceive the role of the RCN as essentially a coastal defence organization, with occasional minor expeditionary roles—resulting in a clear case of misalignment between government defence policy and a service branch’s doctrine, subsequently undermining plans to construct and purchase replacement *Type 26* frigates (see Appendices A, B and C for short chronologies of Canadian and Australian defence policy and procurement efforts during this period).

For Canadian politicians, unlike in Australia, the end of the Cold War was supposed to represent the arrival of a new era signalling a ‘peace dividend’—consequently allowing national defence spending to fall to about 1% of GDP. This was not an isolated situation: defence spending among the NATO Allies between 1987 and 1993 fell by around a third (Markowski & Hall, 1998, p. 8). To make matters worse, from the blue-water RCN’s perspective, the Conservative Party, under Prime Minister Stephen Harper, in 2007 inaugurated a defence policy that very much stressed national (Arctic) sovereignty, so that the construction of the Arctic Offshore Patrol Vessel/Ships (AOPV/S) became a central procurement item and was inserted into the proposed warship procurement package before construction could start on the RCN’s *Halifax*-class frigate replacements.

Australian governments, conversely, had a diametrically opposed vision of what the end of the Cold War implied for their country’s defence posture: both Labor and Coalition governments appreciated this period as ushering in not peace but a whole set of new geostrategic uncertainties and risks linked to, among other things, the rise of China and the growth of the People’s Liberation Army Navy (PLAN). This feeling was shared by many others in the region and indeed Association of Southeast Asian Nations (ASEAN) defence spending grew by a third between 1989 and 1994 (Markowski & Hall, 1998, p. 8) as the Chinese challenge intensified. Much the same is evident in the case of the F-35 procurement: here the Canadian tendency to overpromise and underdeliver, to get embroiled in exquisitely political diatribes that would (more or less slowly) critically undermine the case for an efficient procurement will also be on full display. Grounded in an evident disconnect between strategic and political visions, this approach would ultimately not only undermine the preparedness level of the Canadian Air Force, but also contribute to a severe boom-and-boost model of military procurement that generates a critical tension in the system. Because Canadian politicians are very shy about large financial commitments for new military hardware, they prefer to ‘punt downfield’ any such expenditures; however, by delaying the replacement of old weapons systems, they progressively create a situation where there is no other solution to the obsolescence of these systems than a large disbursement (and/or facing a critical gap in capacity), which—in turn—triggers the original aversion. In Australia, however, the much greater alignment yielded very different results, with a comparably speedier and much more effective procurement process.

These dynamics and doctrinal-policy divisions and agreements and their impact on large platform military procurement efforts and strategies are elaborated in the two procurement cases set out below.

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Failure Where Alignment is Lacking: *Type 26* Frigate Procurement Processes in Australia Versus Canada, 1990–2022

Abstract In this chapter we take a broader look at large-scale naval procurement than is usually done by defence or policy analysis in isolation, focussing on the planned purchases of the British BAE Systems' *Type 26* frigate by both Canada and Australia. We argue that successful procurement/implementation in naval procurement in general requires the existence of (1) a clear naval doctrine that supports a rationale for the procurement of a particular weapon system and (2) the acceptance on the part of the government of that doctrine along with a commitment to ensuring strategic alignment with it. If these two areas are aligned, as they were in Australia, procurement should proceed relatively smoothly, but issues can emerge if the doctrine is missing or unclear and/or if the government disagrees with the doctrine put forward by the military, and prioritizes purchases in other areas or services, as occurred in Canada.

Keywords Policy procurement • Military naval procurement • Doctrinal alignment • Service doctrine • Canada • Australia • *Type 26* frigate • Geostrategy • Naval force structure • Ballistic missile defence • Anti-Submarine Warfare • Sea power • Maritime operations • Joint forces

In this chapter we take a broader look at large-scale naval procurement than is usually done by defence or policy analysis in isolation. We argue

that successful procurement/implementation in naval procurement—working from the general approach above—requires the existence of (1) a clear naval doctrine that supports a rationale for the procurement of a particular weapon system and (2) the acceptance on the part of the government of that doctrine and a commitment to ensuring strategic alignment with it. If these two areas are aligned, procurement should proceed relatively smoothly, but issues can emerge if the doctrine is missing or unclear and/or if the government disagrees with the doctrine put forward by the military and prioritizes purchases in other areas or services.

As we have seen, major weapons systems that are developed/procured over long periods of time—during which changes in government priorities and/or changes in governments themselves can occur—are particularly susceptible to challenges in a way that less expensive and shorter-term purchases are not. Below we examine first the successful Australian and then the unsuccessful Canadian experiences in procuring *Type 26* frigates and the lessons about *Type 4* military platform procurement, and *Type 4* procurement in general, that can be derived from these two cases.

3.1 THE AUSTRALIAN FRIGATE PROCUREMENT CASE

The Australian experience with its *Hunter*-class *Type 26* frigate procurement moved in a fairly straightforward manner when compared to the Canadian case and the ships are currently under construction after only about a decade of planning and preparation.

To understand why the RAN has been able to commence construction on its *Type 26* frigates while Canada has not, it is necessary to appreciate the naval and political backgrounds in the Australian defence context. From its foundation with the Australian Naval Defence Acts of 1910 and 1911 (Stevens, 2001, pp. 17, 19), the RAN has been perceived by Australian governments as an “advanced line of defence” capable of “either countering or deterring any potential attack through a combination of early warning, forward basing and high technology” (Stevens, 2012, p. 189). The prevailing pre-Second World War conception of the RAN’s role was, of course, as a contributor to broader Commonwealth Imperial defence, although by 1938 it was recognized by the British Admiralty that the RAN’s core contribution would be to the defence of Australia and the merchant trade routes in the Pacific (Stevens, 2012, p. 193). During the Second World War, the RAN, much like the RCN, nevertheless, played a key role in training Anti-Submarine Warfare (ASW) personnel during the Battle of the Atlantic (Stevens, 2012, p. 194).

In the period before the Vietnam War, Australia's naval doctrine was increasingly closely tied to the development of its US alliance (ANZUS) of 1951 and then the Southeast Asia Treaty Organization (SEATO) agreement of 1954–1977 (Beddie, 1979, p. 419; Stevens, 2012, pp. 194–195). The RAN was transitioning away from the United Kingdom and gravitating towards the United States during this period. This was significantly the case during the Vietnam War (1964–1975) by which time Britain's presence east of Suez was steadily declining (Frame, 2009; Killen, 1976, p. 2).

The Australian military services were unified into the Australian Defence Force (ADF) by the Coalition government of Malcolm Fraser in 1976, based on the recommendations of a 1973 report by then Labor Secretary of Defence Arthur Tange (Edwards, 2006). The period 1972–1975 in general was a reformist period, wherein the Labor government implemented the first commitment to “continental defense” but also reduced service manpower in the wake of the abolition of compulsory service in 1973, with the size of the RAN falling by 1100 servicemen (Beddie, 1979, pp. 414; 422–424). Increasing self-reliance became the main strategic consideration (Mortimer, 2002, p. 15) and the RAN specialized as an Anti-Submarine Warfare (ASW) force under the SEATO umbrella (Frame, 2009), although it was also significantly focused on regional expeditionary operations (Killen, 1976, p. 10). Closer integration with the United States Navy (USN) to counter Soviet submarine expansion in the Pacific was also ongoing after Vietnam (Frame, 2004, pp. 257–258).

Commodore Alan Robertson was appointed Director-General Naval Operations and Plans in 1976 and proceeded to create a 20- to 30-year RAN force structure plan, based on long-term (Plan Blue: 20 years or more), medium-term (Plan Green: 10 years), short-term (Plan Orange: 3 years) and immediate-term (Plan Red: 1 year) variants (Robertson, 2003, p. 14).

This resulted in the 1978 force structure proposals drawn up by Robertson (Robertson, 2003, p. 16) (see Table 3.1).

This situation began to change with the dissolution of SEATO in 1977, as by the early 1980s the United States was refocusing on its European flank and the Middle East in the post-*détente* period of the Cold War. Australian defence policy therefore refocused on self-reliance, which for the RAN meant a more balanced capability to defend the sea-lane approaches to Australia (Beazley, 1987, p. 1). The vital nature of continued RAN technology exchange with the USN, however, was highlighted by the acquisition of the *Adelaide*-class of frigates, based on the USN's

Table 3.1 Australian Navy Force structure proposals

<i>Option A</i>	<i>Option B</i>	<i>Option C</i>
<i>Blue Water</i>	<i>Jeune Ecole</i>	<i>Fortress Australia</i>
3 Sea Control Ships	4 FFGs (guided missile frigate)	12 FFGs
6 FFGs (4 already on order)	6 Patrol Escorts	12 Patrol Escorts
6 Patrol Escorts (270°CG)	12 PTFGs	12 PTFGs
6 Submarines	6 Submarines	6 Submarines

own *Oliver Hazard Perry*-class of FFGs (Dennis et al., 2009). Capability loss did occur, however, the leading exemplar being the failure to replace the ageing carrier HMAS *Melbourne* with HMS *Invincible*, a proposal that was interrupted by the Falklands War, resulting in the loss of the RAN's fixed-wing aviation between 1983 and 1984 (Frame, 2004, pp. 261–262).

When a new defence policy white paper was released in 1987, the focus was still on self-reliance and the independent defence of Australia had reached its zenith, which meant, for the ADF, focusing on Intelligence, Surveillance and Reconnaissance (ISR) and maritime forces capable of “defending the air-sea gap” (Fortune, 2014, p. 6). The RAN subsequently participated in both the 1991 Persian Gulf conflict and the Iraq War of 2003 in support of US-led coalitions. During the 1990s the retirement of the Seahawk helicopters, plus the retirement of experienced personnel, had caused the RAN's ASW capability to atrophy (Davies, 2016, pp. 41–42). In the Australian maritime doctrine publication of 2000 (Shackleton, 2000), Chief of the Navy Vice Admiral D. J. Shackleton (based on Sam Bateman and Dick Sherwood's *Principles of Australian Maritime Operations* of 1992) continued to identify national security as the highest strategic priority, which meant that the ADF was to continue to focus instead on regional stability and global cooperation (Shackleton, 2000, pp. 29, 31).

The basic principles of Australia's maritime doctrine, as articulated by AMD 2000, were said to be always geographic: “Australia requires maritime forces capable of meeting the challenges of our strategic geography” defined as the island continent and its vast area of strategic interests (Shackleton, 2000, p. 11). This region is specified to include the Pacific and Indian Oceans, the South East Asian archipelago and the “Southern Ocean”—16 million square kilometres (more than eight million square miles)—which are part of the Australian maritime jurisdiction (EEZ)

(Shackleton, 2000, p. 12). This includes defence of the country's particularly vulnerable offshore petroleum production, representing 85% of Australia's domestic energy consumption in 2004/2005 (Copley, 2006, p. 2).

The nature and importance of the maritime dimension is further illustrated by the fact that 97% of Australia's trade moved by sea in 2003, and in that year offshore petroleum production accounted for \$8 billion in revenue (Oborn, 2003). The imperative for maritime defence was also recognized in the subsequent 2009 defence white paper which stated that, "A particularly difficult aspect of the ADF's principal task would be protecting our sovereignty in the offshore domain, which includes strategically significant offshore territories and economic resources in the remote north-western part of the ADF's primary operational environment" (Fitzgibbon, 2009, p. 53).

Post-Cold War Australian governments also differed from many others around the world in discounting the idea of any post-Cold War 'peace dividend'. Rather, they expected an increasingly complex spectrum of conflicts to emerge in which "national armed forces ... have to do their best to adapt to all these situations and all these possible conflicts. They will need to do more, not less to meet the challenges of the *spectrum of conflict*" (Shackleton, 2000, p. 21).

Sea control, denial, and power projection were thus identified as the "basic tasks of maritime forces" (Shackleton, 2000, p. 37). Thus the capabilities required to carry out maritime operations and sea control were highly significant, requiring the commitment of significant resources for the RAN. As was recognized in the 2000 defence white paper, amphibious and expeditionary warfare increased in importance for both the RAN and ADF more generally in the post-Cold War period, and this was followed by the announcement in 2003 that major amphibious and sealift ships would be procured (McCaffrie, 2004, p. 33; Moore, 2000, p. 51; Ng, 2004, p. 19). This appreciation was met by the 2009 white paper's focus on Landing Helicopter Docks (LHDs) and at sea replenishment ships (Fitzgibbon, 2009, p. 73). The decision to procure the F-35 Joint Strike Fighter (JSF), Project Air 6000, also renewed calls for Australia to procure aircraft carriers from which to operate them, as part of a broader "Amphibious Ready Group" concept (Leonard, 2004, p. 21).

The 2003, 2005 and 2007 defence updates by the Coalition government also promised to continue to expand the RAN's amphibious capability, based on lessons learned from the high tempo of expeditionary

operations during the decades of the 1990s and 2000s (Stapleton, 2014, pp. 53–54). While there was renewed focus in the service literature on the Amphibious Ready Group capability to expand RAN maritime options (MacRae, 2010, p. 42), it was also a fact that actual RAN surface combatant numbers declined overall from 14 in 1997 to 12 in 2008 (Cordner, 2008, p. 5), and the services' manpower likewise declined from 16,059 in 1985 to 13,230 in 2008 (McDonagh, 2010, p. 22).

The decline in ship numbers had by 2009 resulted in an emphasis on recapitalization of the Australian fleet and this and other recruitment promises were made in a 2009 white paper. Together they were deemed to constitute the basis for the foundation of a New Generation Navy (NGN) (Woods, 2010, p. 12). There was significant interest in the *Australian Naval Institute Journal*, for example, in the procurement of the new submarines (then known as Project Sea 1000), and in particular whether it would be possible to equip them with nuclear power plants to extend their range and stealthiness (Girgis, 2010; Kilham, 2010). The proposed 12 conventional undersea boats were expected to cost somewhere between \$17 and \$36 billion in 2009 dollars, although there would be significant savings if the submarines were purchased from abroad (Kilham, 2010, pp. 5–6).

Given the increasingly maritime and amphibious focus of the RAN's doctrine (Wilson, 2013, p. 78), shipping protection was an area of renewed importance (Griggs, 2013, p. 8; St. John-Brown & Lobley, 2001; Till, 2001). One consequence was the 2009 cancellation of the Super Seasprite helicopter procurement project which was replaced instead with one for the MH60R Seahawk, in turn reintroducing a dipping sonar ASW capability into the fleet after a 20-year hiatus (Davies, 2016, p. 43).

In 2013 Vice Admiral Ray Griggs, Chief of the Navy, wrote in the *Australian Defence Forces Journal* about the Australian maritime strategy, focusing on maritime sovereignty and calling for a stronger joint approach (Griggs, 2013, p. 5). Sea control in amphibious operations became a priority for the RAN and the ADF joint force more generally, although ASW capability was predicted to once again become a core capability, especially once new submarines and frigates were introduced. However, maritime air support was considered to be a point of weakness (Wilson, 2013, pp. 78–79).

Between 2013 and 2017 planning for additional surface ships continued. The Australian Maritime Operations doctrine of 2017 outlined a range of needed operations, from combat to non-combatant roles (Barrett,

2017, p. 13), and stated that reliance on allies was critical for achieving such vast offensive capabilities as blockade and amphibious operations (Barrett, 2017, p. 96). Protecting Australia's maritime trade received significant attention (Barrett, 2017, pp. 103–120), as did expeditionary and amphibious operations (Barrett, 2017, pp. 123–131), and the sea control capability necessary to enable these (Barrett, 2017, pp. 133–144). Overall, the doctrine outlined a broad array of capabilities at both the high- and low-end of the naval warfare spectrum that would require a balanced and very capable force structure to actualize. This approach included increasingly closer and deeper connections with the military industry. In early October 2017 Vice Admiral Tim Barrett, the Chief of the Navy, gave a speech at the Sydney Sea Power Conference, highlighting the government's commitment to "the rolling acquisition of new submarines, and continuous build of future frigates and minor naval vessels" to achieve these goals (Barrett, 2018, p. 31). Construction on the new ASW frigates was expected to begin in 2020 (Barrett, 2018, p. 32).

The future frigate programme itself had been kickstarted by the 2000 white paper, wherein the future force structure of the RAN was laid out. This defence white paper argued for the acquisition of a new class of air defence frigates, while laying out expectations that "a major surface combatant program" would follow upon completion of the *Anzac*-class frigate production run (Moore, 2000), replacing the ageing *River*-class destroyer escorts which were decommissioned between 1985 and 1994; HMAS *Anzac* entered service in 1996.

There was significant focus, since 2016, on a A\$180 billion commitment to national shipbuilding (Noonan, 2020, p. 17). Australia's existing air defence frigates, the *Adelaide*-class, were scheduled to begin decommissioning around 2013, although in the case of the *Camberra* and *Adelaide* specifically these dates were brought forward to 2005 and 2008 respectively, which meant that it was necessary to procure "at least three air-defence capable ships" that would be "significantly larger and more capable than the [*Adelaide*-class] FFGs." Planning for these future Air Warfare Destroyers (AWDs), the *Hobart*-class (Moore, 2000, p. 90), then began in 2005/2006 (Watt, 2014). These warships would eventually fill not only the air defence requirement, but also a 20-year DDG (Guided Missile Destroyer) capability gap, that had emerged with the retirement of the three, 35-year-old, *Perth*-class destroyers between 1999 and 2001. The cumulative project cost was expected to be A\$9.1B for three vessels.

The complexity of the AWD programme, and a decision to proceed with a domestic build, however, meant that some delays were incurred; indeed, the *Hobart*-class were still on order in 2009 (Fitzgibbon, 2009, p. 71). Finally, in 2014, Navantia's *F100* destroyer was awarded the contract (Watt, 2014), and the lead ship was commissioned three years later, late in 2017 (Corby, 2017). Although there were complaints that the destroyers were delivered over budget and behind schedule, with Australia's ASC shipyard taking the blame for both (Gardner, 2018), these criticisms appear mild when compared to extensive, decades-long delays in the Canadian *Type 26* case, as we shall see.

The *Adelaide*-class frigate upgrade process meanwhile lasted almost two decades, beginning with the initial 1991 policy statement, continuing through to the 1999 contracting of ADI Ltd (Thales Australia) and concluding with the vessels being delivered between 2006 and 2009 (Cordner, 2008, p. 13). Between 2015 and 2019, however, the decommissioning of the *Adelaide*-class continued, with four ships retired, and the last two *Adelaide* FFGs were recently sold to the Chilean Navy in April 2020 (Kelly, 2020). This chronology of these Australian naval procurement projects is set out in Table 3.2.

Part of the reason for these delays rests with the Australian commitment to defence self-reliance, historically stemming from the 1976 white paper which put considerable pressure on Australian governments to maintain a long-term shipbuilding capacity (Killen, 1976, p. 39). This was not a simple task: it implied striking a complex balance between ensuring that a competitive defence procurement process was in place, on the one hand, while also fostering industrial growth at the national level to ensure sufficient capacity in case of conflict, on the other (Markowski & Hall, 1998, p. 138). At the end of the Cold War, Australian governments nevertheless had divested from the domestic defence industry, with the goal of fostering private sector efficiency and job creation—but this came at the cost of forgoing rapid recapitalization cycles (Markowski & Hall, 1998, pp. 138–139).

In 2009, the Labor government published a defence white paper reiterating the government's commitment to the replacement of the *Anzac*-class with eight new frigates (Davies, 2016, p. 43; Fitzgibbon, 2009, p. 43). However, because the first vessel would not be delivered for another 15 years, there was little immediate urgency. In fact, it was the submarine replacement programme that continued to generate the most interest, in particular whether they would be nuclear powered or not, as mentioned above (Girgis, 2010; Kilham, 2010).

Table 3.2 Australian *Type 26* chronology

<i>Year</i>	<i>SEA 5000 key events</i>	<i>Department of Defence (DOD) budget</i>
2000	<i>Anzac</i> -class frigate replacement mentioned in 2000 white paper	A\$12.2B in 2000
2005	Air Warfare Destroyers (AWDs), <i>Hobart</i> -class destroyers, to be built to replace <i>Adelaide</i> -class frigates. Eventually determined to be built as modified Navantia F100 destroyers	1.8% of GDP
2009	<i>Anzac</i> replacement scheduled for the 2025–2030 timeframe, designated SEA 5000 project. 20 Offshore Combat Vessels first proposed. Collins submarine replacement first proposed, with 12 vessels to be built	1.8% of GDP
2012	<i>Hobart</i> -class destroyers begin construction	1.67% of GDP
2013	Gillard government defence white paper reiterates intention to develop <i>Anzac</i> replacement, but with the Collins class future submarine replacement given a higher priority	1.56% of GDP
2015	Abbott government accelerates SEA 5000 project, now to begin construction in 2019–2020 instead of 2024	1.95% of GDP
2016	Turnbull government states that the <i>Anzac</i> replacement short list included RN's BAE Systems' <i>Type 26</i> , the Franco-Italian Fincantieri <i>FREMM</i> , and the Spanish Navantia <i>F-100</i> . Defence white paper upgrades the order from eight to nine ships	A\$32.3B in 2015/16, 2.08% of GDP
2017	May: Naval Shipbuilding Plan (NSP) released, National Naval Shipbuilding Enterprise announced	
2018	<i>Type 26</i> was announced as the winner in June, with the first ship entering service in 2027–2031. The now designated <i>Hunter</i> -class frigates were expected to begin construction in 2022. The advanced work arrangement between BAE System Australia and the Australian government was settled in October 2018, and the contract signed in December. <i>Hobart</i> -class destroyers finish construction	1.89% of GDP 9 ships estimated to cost A\$35B
2019	Offshore Combat Vessels begin construction	1.88% of GDP

(continued)

Table 3.2 (continued)

<i>Year</i>	<i>SEA 5000 key events</i>	<i>Department of Defence (DOD) budget</i>
2020	Morrison government issues defence force's structure update. The defence industrial base would be strengthened through the Australian Industry Capability (or Content) programme, mandating that 65–70% of the new <i>Hunter</i> -class frigates would be developed domestically. Lockheed Martin Australia and Saab Australia would integrate the Aegis Combat System for the <i>Hunter</i> -class. Prototyping begins on <i>Hunter</i> -class, with construction to begin in 2022	Hunter class now expected to cost A\$45.6B dollars and the Attack class A\$89.7B over the next 20 years
2021	AUKUS agreement to build nuclear attack submarines (SSNs) supersedes conventional French submarine deal for <i>Collins</i> -class replacement. Systems Definition Review (SDR) for <i>Hunter</i> -class underway	A\$44.62B in 2021, 2.09% of GDP

Compounding the defence recapitalization delays, the Global Financial Crisis of 2007–2009 resulted in falling defence budgets. Furthermore, the Australian Labor party was unwilling to significantly increase its defence spending, even if support for the naval recapitalization plan was bipartisan. Under the Howard governments of 1996–2007 defence spending had in fact doubled from A\$9.9B (1.87% of GDP) to A\$19.9B (1.6%) (Carr & Dean, 2013, p. 81), but remained stable, despite inflation, from 2007 (1.68–1.82%) (Carr & Dean, 2013, p. 77) to 2013 (1.56–1.64%) (SIPRI, 2021). The inflationary reduction in funding, combined with the 2007 financial crisis, meant a significant postponement of the very generous funding that many defence white papers and defence updates had outlined (Davies, 2016, p. 44; Watt & Payne, 2013).

Under the Gillard government various defence reviews took place, including the Defence Planning Guidance, ADF Force Structure Review (2012) (Smith, 2013, p. 75) and the Defence Force Posture Review (Smith, 2013, p. 4). The 2013 white paper specified that the ADF would refocus towards Indo-Pacific security and move ahead with the development of the RAN's future force structure, which would specifically include a *Collins*-class submarine replacement and the replacements for the *Anzac*-class frigates (Davies, 2016, p. 44; Smith, 2013, p. 83). Once again, however, the future submarine programme retained the highest priority, and the FFG replacements were delayed (Smith, 2013, pp. 123–124), despite

the RAN considering them a key component of their maritime and amphibious force structure (Griggs, 2012, p. 20; Raymond, 2018, p. 355). Nevertheless, there remained evident connections to the ‘foundations’ of the Australian approach, for example, considering that warships were to undergo “continuous production” (Davies, 2016, p. 44)—a strong signal that self-reliance was still firmly on the books.

By the mid-2010s, the question of how to best manage the increasingly expensive naval construction projects was becoming central, and various reports were produced by Research and Development Corporation (RAND) to analyse the problem. There were a variety of options on the table to replace the FFGs, including the Norwegian *F310 Fridtjof Nansen*-class (built by Navantia), the Blohm and Voss *F125, Meko 600* escort frigate, and Australia’s own designer Austal, who had built the USN’s *Independence*-class Littoral Combat Ship (LCS), was also in the running (Defense Studies, 2014). In 2014, a report looked at three procurement models for the SEA 5000 programme: the first relied on the ‘built in Australia’ approach, the second centred on the modified off-the-shelf design (MOTS) model, and the report was rounded out by an “evolved MOTS” where major changes were made to an existing MOTS design (Schank et al., 2014).

In April 2015, the third report in this series of RAND analyses of Australian shipbuilding recommended the domestic construction of four Offshore Combatant Vessels (OCVs) as a first step in the transition to the future frigates (Birkler et al., 2015). This approach was comparable to the Canadian warship package model adopted under the National Shipbuilding and Procurement Strategy (NSPS) by the Harper administration, in first constructing several Arctic Offshore Patrol Vessels (AOPVs—the future *Harry DeWolf*-class) prior to transitioning to its own frigate construction. The downside was that this choice would imply slowing each frigate’s build cycle by something between 12 and 24 months (Thomson, 2015) and ultimately, Prime Minister Tony Abbott’s Coalition government chose instead to accelerate the SEA 5000 project and bring forward its start date from 2024 to 2020 (Davies, 2016, p. 46; Gardner, 2018), while at the same time increasing defence spending from 1.77% of GDP in 2014 to 2.08% in 2016, importantly out-pacing inflation (SIPRI, 2021).

Progress continued under Prime Minister Malcolm Turnbull, who, on 18 April 2016, announced that the Royal Navy’s BAE Systems’ *Type 26* Global Combat Ship, the Franco-Italian Fincantieri *FREMM* and the Spanish Navantia *F-100* were the three vessels short-listed to replace the

Anzac-class frigates. Furthermore, the buy order was increased from eight to nine ships (Davies, 2016, p. 45; Department of Defence, 2016, pp. 21, 93, 113), at a total estimated cost of A\$35B (Defence Connect, 2018).

Australian governments continued to pepper the procurement period with policy statements: the 2016 defence white paper, derived from the First Principles Review of August 2014 (Department of Defence, 2016, pp. 165–166), showcased significant continuity in the theme of naval modernization and regional security, which had already been outlined by both the previous Labor and Coalition governments. A ten-year capitalization plan, the 2016 Integrated Investment Program, with funding targeted at A\$195B between 2016 and 2026, was also announced (Department of Defence, 2016, pp. 31, 86), which would entail that overall defence spending reach and maintain at least 2% of GDP by 2023/2024 (Department of Defence, 2016, pp. 24, 30).

Criticism of the shipbuilding strategy remained, however, with navalists arguing that the process was too slow and politicized (Davies, 2016, p. 41). To address these concerns, in May 2017, the Naval Shipbuilding Plan (NSP) was released, securing A\$168–183B as part of the National Naval Shipbuilding Enterprise (Department of Defence, 2021) and assigning to the DOD as much as 25–30% of its acquisition budget (itself 10% of the overall budget for DOD) for warship procurement (Hellyer, 2020, pp. 32–33).

Procurement reform was an important component of this extensive future shipbuilding programme, which was to include 12 new submarines, 3–4 *Hobart*-class vessels, and the nine new frigates (*Hunter*-class), not to mention a number of offshore patrol and combat vessels, two LHDs, and sealift replenishment ships (Anderson, 2016). In June 2018 it was announced that the *Type 26* had been selected for the future frigate programme, with the first ship scheduled to enter service in 2027 (although this was later delayed to 2031). In October 2018, BAE System Australia and the Australian government agreed to the details of the advanced work arrangement for the frigates (Kuper, 2018a), and Defence Minister Christopher Pyne signed the A\$35B contract on 14 October (Kuper, 2018b). The initial fiscal commitment for the preliminary design and engineering work was A\$52M (Defence Connect, 2018).

The government of Prime Minister Scott Morrison, who had succeeded Turnbull in 2018, next released the 2019 Strategic Policy Review, with a 2020 defence policy update and force structure updates immediately following. These documents upped the ante for ship construction even

further, embodying a transition to a more assertive strategic posture for Australia, one that would focus on the projection of power in the region, rather than exclusively upon the defence of the continental maritime approaches (Department of Defence, 2020a, pp. 26–27).

The shipbuilding industry was to be developed so as to become both sustainable and continuous (Department of Defence, 2020b, p. 43). The Australian Industry Capability (or Content) programme was the tool chosen to strengthen the national defence industrial base (Department of Defence, 2020b, p. 90) by mandating the domestic development of 65–70% of the now designated *Hunter*-class *Type 26* frigates, which would lead to the contracting of “over 500 [or 700] Australian businesses from every state and territory” (Kuper, 2018b). The *Hunter*-class programme was already employing 1400 people in both Australia and the United Kingdom in 2021, and the Systems Definition Review (SDR) had been completed at the beginning of that year (Lockhart, 2021, pp. 66–67). Forty additional domestic contracts had also been arranged (Lockhart, 2021, p. 68). In 2020 Chief of Navy Vice Admiral Michael Noonan stated that “the Navy’s relationship with industry is as strong now as it was [in 2018], if not stronger.”

Construction for the *Hunter*-class was now scheduled to last from 2020 to the 2040s, at an estimated cost of A\$45.6B (Department of Defence, 2020b, p. 45). This was a significant quantity of money, nearly equal to the entire defence budget for 2021 (A\$44.62B) (Hellyer, 2021). Defence spending was therefore scheduled to increase, with the goal of reaching A\$53.24B by 2024/2025 (Brangwin et al., 2021). Prototyping began in December 2020, with construction scheduled to begin in 2022 (Allison, 2020), and the first of the nine *Hunter*-class frigates indeed began construction that year, the first steel having been delivered in 2021 (Naval News 2021).

At this point, both the *Hunter*-class and several *Arafura*-class patrol boats were “on contract and well into the design phase” (Department of Defence, 2020b, p. 43). A successor class to the *Hobart*-class was also being considered (Department of Defence, 2020b, p. 37), and the future *Attack*-class submarines were then being negotiated under contract with the French, although they were soon to be upgraded to nuclear propulsion and re-contracted with the British and United States as part of the controversial AUKUS agreement (The Economist, 2021). This was at least in part due to the inability of the French to meet the Australian domestic industry requirements (Master, 2021).

From this short overview, it can be seen then that there was long-term historical alignment between the RAN and the ADF's maritime doctrine and the expectations of Australian governments articulated in their defence policy statements. Although priorities within the broader defence policy regime varied a little between leaders and governments, this was essentially a bipartisan issue and the RAN's importance as a vital guarantor of Australia's safety was recognized by everyone concerned. Warship and submarine recapitalization thus progressed relatively smoothly, with ageing systems being decommissioned and replaced with minimal capability gaps, although occasionally very expensive systems such as aircraft carriers or amphibious landing ships came and went.

The future frigate program waxed and waned in significance, especially as the cost and complexity of the systems increased, but was nevertheless recognized as essential and, significantly, ships are now under construction after only about a decade of serious planning and budgeting although Australian critics still consider build-times too long and programme costs unnecessarily high or over budget, these are very mild concerns in comparison to the problems with the Canadian frigate procurement programme, as we shall see below, which started somewhat earlier and has yet to see construction begin.

3.2 THE CANADIAN FRIGATE PROCUREMENT CASE

While Canadian procurement of major military platforms over the past 40 years (including aircraft, helicopters, submarines and surface ships) has been riddled with issues and often been described as a major procurement policy problem (Paas-Lang, 2022; Perry, 2015; Plamondon, 2011; Sloan, 2014; Vucetic, 2016), the process attached to the current Canadian Surface Combatant (CSC) has been, contrarily, praised by multiple stakeholders.

Hence, if lack of progress on ship construction is not determined by the procurement process itself—a commonly pointed at culprit for the many delays and problems which have featured in other rounds of Canadian military procurement (Mack, 2020)—what accounts for the decades of delays, and capability gaps in the case of Canada's frigate and destroyer replacements? And, in particular, why do we see the same chequered stop-start pattern emerge in this area, much like it did elsewhere with other large procurement processes, for example, during the failed acquisition of the EH-101/*Cormorant* helicopter when procurement cycles were

evidently subject to political over-rides and cancellations (Byers & Webb, 2013; Plamondon, 2010)?

It has been observed above how successful procurement in large, long-term and non-incremental (Type 4) programmes requires that clear and operationalizable objectives and settings be matched to properly calibrated policy tools. There needs to be alignment between these two aspects of procurement if we expect successful implementation and, indeed, this was clearly the case in the Australian frigate example examined above. However, this alignment can be difficult to achieve if the main actors in this process engage in it without a guarantee that their objectives and tools will be matched in the way they would like, and even if they are initially matched, there is no guarantee that this alignment can be sustained throughout a very long-term procurement cycle. As we shall see below, both these circumstances fit the Canadian Patrol Frigate (CPF) replacement case.

Appendix B summarizes the general policy goals of Canadian defence policy since 1964, developed from the government's major policy statements. As this chronology shows, Canadian defence policy goals and objectives continuously shifted during this time period, and this was especially true when considering the prioritization of the defence policy regime itself. That is, successive Canadian governments prioritized either collective security or national sovereignty, and differed in how governance arrangements around these goals were organized, for example, emphasizing NATO commitments or the preservation and protection of Canada's Arctic sovereignty, two tasks which require very different equipment.

In general, the picture that emerges is one in which Canadian defence arrangements and broad goals changed somewhat slowly and in a largely secular fashion, although they were either boosted or limited from time to time by major historical events including the end of the Cold War and the 9/11 terrorist attacks. However, meso-level policy objectives were revised more frequently, and often on what appears to be at least partially partisan grounds. For example, when collective defence was centre stage, it became imperative for Canada to showcase a true commitment to NATO and NORAD missions, which in turn meant that—at the very minimum—the country needed to maintain and make available to these organizations a core set of capabilities including logistical support, air defence and anti-submarine warfare, that the Alliance could then draw upon if nuclear or conventional war occurred.

But Canadian governments from Pierre Trudeau onwards often prioritized defence sovereignty in a bid to emphasize an independent Canadian

foreign policy beyond the country's alliance frameworks, the result of which was always a reduction of defence spending commitments as national security was invariably a less expensive option than strategic (collective) defence. Hence, the concept of 'sovereignty' as interpreted by Maritime Command, and later the RCN, became coterminous with a renewed focus on coastal defence (especially in the Arctic) that was expected to bleed resources away from the country's larger scale alliance commitments in the Atlantic and Pacific theatres.

With the end of the Cold War the relative importance of Canada's commitment to collective defence declined, and the notion emerged in the country that Canada, and indeed the world, would now be able to enjoy a substantial 'peace-dividend' because the arms race (and its inherent costs for new and updated equipment) could be abandoned. The RCN, however, as in the Australian case, correctly argued the opposite: that, if anything, Canada's international commitments would *increase* as new, multiple threats relating to global terrorism and failing states would emerge in the power vacuum left by the demise of the Soviet Union and its bloc.

This warning fell on generally deaf ears and it was not until 11 September 2001 that the federal government's reluctance to adequately fund defence ended. In the interim, however, Canada's military had struggled through a long series of procurement crises—including both ships and helicopters—that severely undermined its international collective security capacity.

Paradoxically, however, for the Navy in particular, 9/11 did not unlock the boost in funding that other parts of the CAF enjoyed. The post 9/11 Afghanistan operation, with its land focus, the decision of the Conservative government to prioritize Arctic patrol vessels, and the F-35 procurement fiasco (see following chapter), further marginalized the RCN, a position from which this service never truly recovered.

As Table 3.3 summarizes, during the study period the RCN's doctrine attempted to remain constant despite shifting political goals, resulting in alternating periods of alignment and misalignment with government goals and priorities. Between 1960 and 1990, the RCN's doctrine was firmly set on its NATO collective defence foundation (which primarily meant ASW in the Atlantic theatre), as NATO originally had proposed to then Prime Minister Louis St. Laurent in 1947, extending the Navy's traditional role from the First and Second World Wars. While the Arctic theatre was also recognized as a risk factor, the lack of nuclear submarines which could

Table 3.3 Canadian naval doctrine 1964–2021

<i>Decade</i>	<i>Naval priorities</i>	<i>Risk factors</i>	<i>Budget/GDP %</i>	<i>Horizon</i>	<i>Chief of the Naval Staff</i>
1960s	Anti-Submarine Warfare (ASW) Sealift and support Modernization	Conventional or nuclear war Defence unification Amphibious operations Arctic defence	<i>Contracting</i> 1963: C\$1.786B (3.6%) 1966: C\$1.739B (2.7%) 1969: C\$1.906B (2.3%)	5 and 10 years	VA H. DeWolf (56–60) VA H. Rayner (60–64) VA J. Brock (64) VA K. Dyer (64–66) RA W. Landymore (64–66) VA R. Hennessy (66–68) VA J. O’Brien (66–70)
1970s	Recapitalization collective defence (NATO), ASW	Force restructuring, budget constraints Loss of carriers Soviet re-armament	<i>Inflating</i> 1971: C\$2.098B (2.1%) 1975: C\$3.235B (1.9%) 1979: C\$4.784B (1.7%)	15 years	VA H. Porter (70–71) RA R. Timbrell (71–73) VA D. Boyle (73–77) VA A. Collier (77–79) VA J. Allan (79–80)
1980s	Collective defence ASW, NATO Task groups Equipment replacement, SSNs	Soviet re-armament Life extension Norway commitment and Arctic operations	<i>Expanding</i> 1981: C\$6.163B (1.7%) 1985: C\$10.187B (2.1%) 1989: C\$12.724B (1.9%)	10 years	VA J. Fulton (80–83) VA J. Wood (83–87) VA C. Thomas (87–89) VA R. George (89–91)

(continued)

Table 3.3 (continued)

<i>Decade</i>	<i>Naval priorities</i>	<i>Risk factors</i>	<i>Budget/GDP %</i>	<i>Horizon</i>	<i>Chief of the Naval Staff</i>
1990s	Global operations Service funding and personnel retention	Fleet reductions, Failing states Sea King replacement	<i>Contracting</i> 1990: C\$13.318B (2.0%) 1995: C\$12.594B (1.6%) 1999: C\$12.199B (1.2%)	5, 10 and 12 years Critical review '90 (1991)	VA J. Anderson (91–92) VA P. Carins (92–94) VA L. Murray (94–95) VA L. Mason (95–96) VA L. Garnett (96–97) VA G. Maddison (97–01)
2000s	Collective defence, supporting NATO and UN operations Naval Transformation (RMA)	Ad hoc coalitions Land operations focus Arctic operations Terrorism	<i>Stabilizing</i> 2002: C\$13.332B (1.2%) 2006: C\$14.7B (1.04%) 2009: C\$19.9B (1.16%)	10, 15, 20 and 30 years Leadmark 2020 (2001)	VA R. Buck (01–04) VA M. MacLean (04–06) VA D. Robertson (06–09) VA P. McFadden (09–11)
2010s	National and international security Maritime century Future fleet ships	Ageing platforms Structural disarmament Great power competition, littorals, three ocean commitment	<i>Contracting then expanding</i> 2011: C\$20.2B (1.14%) 2015: C\$18.5B (0.94%) 2019: C\$23.4B (1.35%)	20 years Course from MacLean (2005) Leadmark 2050 (2016)	VA P. Maddison (11–13) VA M. Norman (13–16) VA M. Lloyd (16–19) VA A. McDonald (19–21)

operate in that environment meant that that region was largely ignored by the RCN. A specialization in ASW as a component of NATO became the RCN's force structure justification.

The end of the Cold War meant shrinking CAF budgets, as we have seen, and the RCN effectively took on the shape of a coastal defence force, albeit retaining some global commitments. With Soviet submarines less and less of a threat, probable missions were understood to range from fisheries protection to coastal patrols, especially in the Arctic. Maritime Command's minimum fleet size was established at maintaining two small task groups: one in the Pacific and one in the Atlantic.

The top naval task, regardless of doctrine, became national maritime security as collective defence was rapidly deprioritized by successive Canadian governments, a trend that was synergistically accelerated by the emergence of national security as a critical priority following 9/11. Although Canada's commitment to the so-called Global War on Terrorism required a resumption of some collective defence missions such as anti-piracy actions off Somalia whether the operationalization of this strategy would rely on the traditional Alliance framework or instead be based on a fragmented structure of 'ad hoc coalitions' was unclear. Be that as it may, the RCN's role within the scheme of national security now had two sides: the first was an Arctic reorientation, which increasingly took on both economic and military valence (Leadmark, 2001), and the second was participating in counter-terrorism activities off its own coasts. Both Liberal and Conservative governments after 2001 stuck to this bifurcated national security approach.

However, while this was happening the existing fleet was ageing and required rejuvenation or replacement. The government of Jean Chretien had pursued a gradual replacement project that would have begun with the retirement of the four remaining Cold War-era DDH/DDG 280 destroyers and their replacement by a new set of home-grown Command and Control Air Defence Replacement (CADRE) ships. Paul Martin's government, however, cancelled the CADRE destroyer replacement programme in June 2003 in the wake of the events of 9/11 and later, as the War of Terrorism drew down, Prime Minister Harper's Conservatives then prioritized the Arctic as a much more relevant national security issue. As a consequence, in 2008 Ottawa opted for the introduction of Arctic Offshore Patrol Vessels/Ships (AOPVs) and additional bids were let for replacement supply ships and icebreakers. The political will to carry through with these expensive platforms was however almost immediately curtailed by the 2008 Global Financial Crisis and it still took another decade to see realization with the launching of the first AOPV despite its new and high priority.

The RCN's capacity to undertake its traditional NATO role continued to degrade because of the new focus on the national and maritime security missions, and by the mid-2010s, it had become difficult for it to justify its traditional NATO task group structure. Since the new Arctic patrol vessels were prioritized over major surface combatants (and submarine replacements), the RCN could but await its turn for service recapitalization. By the late 2010s not only was the RCN facing structural collapse from chronic underfunding, but its efforts to maintain its existing fleet, and build new ships, were also foundering.

Unable to abandon its international treaty commitments, however, in response the Harper Conservatives proposed a National Shipbuilding Procurement Strategy (NSPS) which was meant to address shipbuilding procurement delays by creating a more deliberate and strategic approach to the procurement of vessels for the RCN, supposedly to ensure a "blue-water capable Canadian Navy" for many decades to come, alongside the new AOPVs. The current Trudeau Liberal government's National Shipbuilding Strategy (NSS) is a follow-on shipbuilding plan evolved from the NSPS with additional components and elements.

At the core of the NSPS approach, in addition to the AOPVs and new, more capable, support ships, is the Canadian Surface Combatant (CSC) programme. Officially launched in 2004 as the Single Class Surface Combatant (SCSC), the successor of the cancelled CADRE programme to replace the four ageing *Iroquois*-class destroyers (DDG 280s) which had been purchased by the Pearson government in 1968, the CSC in fact has had a much longer historical background than is generally recognized. The approaching need for replacement destroyers had been clear to the RCN at least since the mid-1990s and had been articulated as we have seen in the CADRE programme, first proposed in 1994 (Burke, 1998).

A detailed mapping of the CSC procurement history is found in Appendix A. However, the major stages of the process are set out in Table 3.4 below.

The CADRE process itself was marred from the very beginning by a lack of clarity about the scope of the doctrine—air defence vs ASW—that should have framed the vessels' operations and was stalked throughout by funding issues so much so that in a 30 May 2001 briefing note RCN disappointment seemed to boil over: "This three-hull solution appears to be driven by acquisition costs vice [sic] an agreed capability requirement. It is considered premature to be committed to specific hull numbers to fit a funding level before the department has endorsed the capabilities required

Table 3.4 The Canadian Surface combatant chronology

<i>Year</i>	<i>CSC key events</i>	<i>Department of National Defence (DND) budget</i>
2001	Command and Control Air Defence Replacement (CADRE) underway	C\$12.971b (1.2% of GDP)
2002	May: Parliamentary Standing Committee Report on National Defence endorses <i>Tribal</i> -class replacement	C\$13.332B (1.2%)
2005	Canada's International Policy Statement mentions replacement for <i>both</i> frigates and destroyers. May: Securing Canada's Ocean Frontiers mentions Single Class Surface Combatant (SCSC)	C\$15.738B (1.05%)
2007	Rear Admiral Ian Mack appointed DND's Director-General for implementation of National Shipbuilding Procurement Strategy (NSPS)	C\$19.2B (1.16%) C\$3.1B allocated for AOPV, + C4.3 \$B over 25 years
2008	Canada First defence policy states that 15 ships would be acquired, beginning in 2015, to replace existing frigates and destroyers. NSPS Office formed	C\$19.9B (1.26%)
2010	NSPS Office transferred from DND to PSP. NSPS Secretariat formed September: Solicitation of Interest and Qualification (SOIQ) issued, shortlists shipyards for NSPS packages	C\$20.2B (1.14%) October: <i>Halifax</i> -class modernization project begins, C\$2B; completed November 2016
2011	October: Irving and Seaspan announced as winners of the NSPS packages	C\$20.0B (1.10%)
2012	January: Umbrella agreements signed with shipyards June: 'definition' work begins on CSC	C\$18.8B (0.99%)
2014	February: Defence Procurement Strategy (DPS) announced September: decision to decommission two destroyers and two supply ships announced, reduces RCN hull capacity by 25%	C\$18.7B (0.94%) PBO reports that AOPV project is over budget

(continued)

Table 3.4 (continued)

<i>Year</i>	<i>CSC key events</i>	<i>Department of National Defence (DND) budget</i>
2015	DPS Secretariat formed May: Most Competitive Procurement Strategy, prelude to selection of Combat Systems Integrator and Warship Design team for CSC begins	C\$18.6B (0.92%) C\$26B estimate for frigate replacements C\$700M supply ship conversion project
2016	February: RN Rear Admiral Steve Brunton hired as government consultant (until March 2020) March: NSPS renamed NSS June: Streamlined procurement process announced October: Irving shipbuilding begins accepting bids for CSC design. Fincantieri complains that acquisition process unfairly favoured <i>Type 26</i> December: RCN's 2017–2022 plan, references task group operations with up to four surface combatants	C\$20.6B (1.2%)
2020	CSC programme costs continue to increase due to platform complexity and inflation	C\$30B (1.45%) August: PBO reviewing CSC project November: PBO review indicated cost of JSS programme now at C\$4.1B
2021	PBO and Office of the Auditor General (OAG) reports indicate the NSS has not succeeded, and the CSC programme is years behind schedule. DND states they have no intention to change hull type	February: PBO and OAG reports released, CSC project now expected to cost at least C\$77.3B for 15 ships

in CADRE. ... The fixation on affordability vice [sic] a discussion on what capabilities are desired is frustrating” (Westlake & Pickford, 2001, p. 2). These concerns about an excessive obsession with costs over commitments were further articulated: “[t]he CADRE project is a complicated project that has the potential to provide the CF [Canadian Forces] with the capabilities necessary to function alongside our allies well into this century. Unfortunately, affordability issues seem to be driving the requirement. Lack of CF doctrine is frustrating development of capability requirements. These issues are going to affect CADRE throughout its development” (Westlake & Pickford, 2001, pp. 3–4).

To make matters worse, the technical complexity of the project and the ‘build-in-Canada’ requirement further hindered the process. As the RCN pitched large new platform acquisitions Canadian defence policy shifted twice, first to support post 9/11 operations in Afghanistan, and then under the Harper Conservatives, to focus on Arctic sovereignty. CADRE was cancelled in 2003 and its successor SCSC and then CSC programme were deprioritized so that no real progress was achieved for the better part of two decades.

But destroyer replacements nevertheless remained a key topic in RCN doctrine. Maritime Command’s *Leadmark 2020* doctrine manual of June 2001 (Leadmark, 2001) highlighted the need for large warship replacements and these were mentioned again in the May 2002 Parliamentary report on Canadian Forces readiness (Pratt et al., 2002).

However, the demise of the Soviet Union and the focus on the ‘peace dividend’ approach to defence spending, as we have seen, made a destroyer replacement politically and financially unpalatable for government. Replacements for both the four *Iroquois*-class destroyers and the 12 *Halifax*-class frigates were thus bundled together (Graham, 2005), with the Defence Staff’s Directorate of Maritime Strategy proposing the commissioning of SCSCs, for a total of 18–24 hulls, with construction theoretically slated to begin in 2017 (MacLean, 2005).

Since the end of the Cold War, however, as we have seen, Canada’s military procurement systems have been significantly stressed, with few actual deliveries on promised weapon systems taking place anywhere near on time or on schedule. Notable failures include the EH-101 helicopter, the planned replacement for the CF-18 fighters and indeed the replacement of Canada’s ageing surface fleet (Sloan, 2014). Furthermore, the replacement of the 30-year-old *Victoria*-class submarines, which were built in the 1980s and commissioned in the early 1990s by the Royal Navy before being acquired by the RCN in 1998, and whose life cycle extension should end in the early/mid-2030s, is completely off the radar (Department of National Defence, 2017).

Procurement for the RCN has traditionally been shaped by ‘boom-and-bust’ cycles, with entire classes of vessels allowed to deteriorate before being replaced within a relatively short timeframe once they have reached the end of their operational lifespan (but often much later than that). This ‘boom-and-bust’ approach has been blighted by lengthy, protracted and fraught negotiations that generally have disappointed all parties from ship-builders to foreign bidders, as well as military and defence policy

bureaucracies, the media and, not least of all, the public. Indeed, the boom-and-bust cycle has been recognized as a problem by nearly all stakeholders and was one issue the NSS was expected to counter. The usual Canadian military procurement issues, however, quickly reared their head within the NSS. The election of the Harper Conservatives in 2006, for example, brought with it a different approach to the role of the RCN, which included a strong focus on the Arctic (Lajeunesse & Dean, 2016). The frigate replacement lost whatever priority it may have had, and it was determined instead to build first the AOPVs, in order to bolster the government's claim to sovereignty in the Canadian Arctic (Mack, 2020).

The 2008 *Canada First* defence white paper (Department of National Defence, 2008) supposedly sped up the CSC project (construction now was intended to start in 2015), but also reduced the number of hulls from the proposed 18–24 to 15. In October 2011, the federal government officially announced that Irving Shipbuilding of Halifax was the winner of the competition for the combat vessel package Ottawa had crafted (supply vessels and new icebreakers were also being bid upon in a separate package), and between 2012 and 2015 initial industry engagement took place. Ottawa at the time intended to both fully design and build the future combat ships in Canada (Perry, 2015), which would necessarily require a lengthy industry process for design and delivery.

As announcements and policy papers followed one another, however, so did the continual downgrading of the CSC programme. In 2015–2016 the Liberal Party under Justin Trudeau took power, and in the Liberal's 2017 *Strong, Secure and Engaged* defence policy paper the government budgeted a mere C\$14.6 billion for construction of 15 CSCs, with the first hull projected for delivery in 2026 (MacLean, 2017). However, in June 2017 the Parliamentary Budget Officer (PBO) sounded the alarm with regard to these overly optimistic forecasts. The PBO found the CSC project was in such a state of underfunding, due to the choices of the previous Conservative administration, that only six ships, not 15, could be built if the C\$26.2 billion budgeted in 2008 were the only funds available. Building 15 vessels was now projected to cost \$61.82 billion (Thomas, 2017; Story, 2017), far more than had previously been anticipated.

By October 2018 it had become clear that designing the new CSC vessels in Canada would prove, if not impossible, at least crippling for the projected replacement schedule. Similar concerns had been raised by the RCN during the very early stages of the CADRE discussion when the capacity of the Canadian shipbuilding industry to deliver these vessels

autonomously was questioned as it was “believed that very little of the design and engineering expertise involved in the CPF project remains in Canada and yards would require a significant ramp up with high associated costs” (Westlake, 2000, p. 7). This issue would come back to haunt future efforts and effectively required that a foreign design be seriously considered.

It was not surprising then when the federal government, therefore, formally announced in 2017–18 that Lockheed Martin Canada would be the lead company in a consortium that would develop the new surface combatant based instead on the British BAE Systems’ *Type 26* frigate design (Collins, 2019). This seemed to indicate that the programme was at last moving ahead, but only a year later a further blow arrived as the government added two more vessels to the original six AOPVs (these destined for the Coast Guard), and therefore, the new frigates would now likely not be laid down until the mid-2020s, pushing their theoretical commissioning into the 2030s (Parliamentary Budget Officer, 2021; S. Webb & Murray, 2016). Even despite this delay, between 2013 and 2020 procurement costs alone for the project reached C\$1.01B (Brewster, 2020).

Ultimately, as of March 2023, no CSC ship has been delivered—indeed, the programme is still under review—and cost overruns are expected to increase total project costs well beyond C\$80B, and be much higher if total lifetime costs were to be included alongside these initial construction costs (Parliamentary Budget Officer, 2021). As a result, the procurement project for the CSCs is under the very real threat of a major reduction in the proposed 15 hull buy, which would return the RCN to its pre-NSS situation, leaving only a very modest replacement approach that would not fill the operational gap that emerged after the 2014 retirement of the *Tribal/Iroquois*-class of air defence destroyers and possible downgrading of the current *Halifax*-class fleet.

An indication of how this situation may resolve itself can be found in the 2021 PBO report, which noted that almost C\$50B could be saved if the RCN only purchased three or four of the larger *Type 26* vessels, and instead transitioned to the smaller (and presumably much cheaper) export-orientated *Type 31* to replace the rest of the *Halifax*-class, effectively replacing the decommissioned frigates with similarly sized units (Parliamentary Budget Officer, 2021). Meanwhile, a potential third option is emerging, as BAE Systems have announced plans to design and commission by the 2030s a *Type 32* General Purpose Frigate, which may better fit the current Canadian approach because of its modular design and lower costs (Willett, 2022). Thus, at the time of writing, after over two decades of planning,

not a single new blue-water warship has been delivered and most indications portend yet another round of review, pending a shift to a smaller platform not yet even available from the manufacturer.

Analysing the CSC frigate procurement project as an example of a Type 4 (although Canadian governments often treated it much like a Type 3) procurement process helps to understand why this happened. Such processes require not only that the goals of the political and administrative sides be closely aligned but also that such alignment be maintained over the long-term. As developed in Chap. 2 and examined in the Australian frigate case above, this means that successful Type 4 procurement in the case of naval frigates requires that successful projects must be based on a combination of (a) clear naval doctrine justifying a force structure and (b) government(s) accepting that doctrine and providing funding for the force structure. Procurement can be expected to flow along relatively smoothly if these two conditions are met. However, when (a) no clear doctrine is present and/or (b) the government disagrees with it, procurement processes can become highly problematic, especially over the extended periods of time needed to procure expensive, technically complex, weapon systems—and, moreover, if substantial changes occur at the political level, delays and frustration are likely, as has certainly been the case for the CSC project.

Any procurement project would be hard pressed to recover from the kinds of constantly shifting political and security ground that have underlain Canadian defence policy in the post-Cold War era and this is certainly true of the RCN and its plans for fleet recapitalization. Even for simple Type 1 and Type 2 procurement projects, government goals and agency instrument choices need to be continuously aligned and re-aligned to ensure a successful outcome. This has failed to occur in the even more problematic Type 4 frigate procurement case, which focuses on purchasing a long-term, irreversible, high-cost major platform (Chapman, 2019; Nossal, 2012; Plamondon, 2011; Vucetic, 2016). Here a lack of alignment might well prove fatal.

3.3 COMPARISON OF THE AUSTRALIAN AND CANADIAN FRIGATE PROCUREMENT PROCESSES AND OUTCOMES

Procurement represents a key part of public policy, overlapping cognate fields including public administration, policy-making, political economy and, when we talk of defence procurement, straddling the broadly

defined field of public policy studies and more narrowly defined subfields such as defence geostrategy and international studies. The efforts of the Canadian and Australian naval services towards procuring new frigates showcases the complexities involved in these processes and in seeking the alignment needed between the preferences of politicians, the role of administrators and the strategic vision of the military when large, long-term Type 4 procurement programmes are in play.

These disagreements and misalignments are critical to procurement policy failures: in the Canadian case, the ambitions of the RCN to build and maintain a blue-water fleet conflicted with the image that multiple governments' defence policies had of it as a coastal defence force (Fetterly, 2009; C. Stone, 2012). And yet, as the Australian case and even some earlier Canadian examples show, successful major surface warships procurement is possible. This is well demonstrated by the 1970s era *Halifax*-class CPF programme in Canada, by the Canadian AOPV example, and by the Australian *Hunter*-class case presented here. However, the Australian case also clearly shows that for Type 4 procurement to be successful multi-year championship of service doctrine by government policy and leadership are required in order to ensure that commitments to a high level of funding, from multiple administrations, are honoured. Key projects need continual political leadership and Cabinet support, or they will stall, or fail, as has happened to date in Canada (Collins, 2018, p. 44; Richardson et al., 2020).

In other words, here, as in many non-military Type 4 cases, including hydroelectric dams and nuclear power plants, governmental political-economic and electoral considerations need to be continually aligned with agency goals so that budget constraints and complex performance requirements can be met (Caldwell & Howard, 2014). Given the long-term nature of these decisions, the development of Type 4 projects such as weapons systems will reflect shifting electoral calculations that affect government spending priorities as well as those changes in geostrategic considerations that influence military needs and priorities (Calcara, 2020).

The Canadian frigate case has to date been a disaster for the RCN, resulting in capability gaps as the *Tribal*-class destroyers were retired, the CADRE and SCSC successors cancelled, and the practical results of the Canadian approach are that the *Halifax*-class frigates will not be retired until they are reaching over 40 years of service, while it remains unclear if replacement vessels will in fact be available when the older ships are finally sold or scrapped. Delays in starting the CSC programme, combined with

shifting political interest in maintaining continuous building queues for specific kinds of ships, worsened by the 2008 Global Financial Crisis and subsequent cost inflation, have significantly delayed and increased overall frigate programme expense, even in an environment when equipment costs were predictably expected to double every eight years (Sutekh, 2001, p. 24). But more importantly, the RCN's blue-water collective security-oriented maritime doctrine has not been shared by any recent Canadian government, and the resulting lack of equipment purchases outside the AOPVs has meant that the service has been effectively relegated to a coastal and Arctic defence role which it does not support.

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The Significance of Politicization: The F-35 Joint Strike Fighter Procurement Processes in Canada and Australia, 2000–2022

Abstract When examining the acquisition of the F-35 Joint Strike Fighter (JSF) by most western defence departments, the close historical and military connections between these countries with the United States only go so far in terms of an explanation for why some have adopted this platform and others have not. Adoption is by no means automatic and the features of large military platform procurement processes, which are both long-term and involve very large expenditures, with their idiosyncratic nature, multiple actors and strategic policy directions, have played an important role in this area, just as they have when purchasing warships and other military equipment. In this chapter, we compare how Australia and Canada chose to operate when considering the replacement of their ageing F-18 multirole fighters. Again, this process features two very similar countries and the same weapons system, and the different outcome each has had in this case again reveals the significant factors concerning the processes which led to those decisions, and the impact of politics in explaining both the commonalities and differences in the defence procurement approaches of the two countries.

Keywords Policy procurement • Defence procurement • Public administration • Doctrinal alignment • Service doctrine • Canada • Australia • F-35 fighters • Air forces • Strategic deterrence • Networked warfare • Next generation fighter aircraft • Air power • Air superiority • Joint forces

When examining the acquisition of the F-35 Joint Strike Fighter (JSF) by most western defence departments, the close historical and military connections between these countries with the United States only go so far in terms of an explanation for why some have adopted this platform and others have not. Adoption is by no means automatic and the features of large military platform procurement processes (Type 4), with their idiosyncratic nature, multiple actors and strategic policy directions, have played an important role in this area, just as they have when purchasing warships. In this chapter, we compare how Australia and Canada chose to operate when considering the replacement of their ageing F-18 fighters. Again, this process features two very similar countries and the different outcomes each has had reveal significant factors concerning the processes which led to them.

As with the *Type 26* case discussed above, the results of procurement processes aimed at the same platform in the two countries could not have been more different: Australia had by 2023 already purchased and received a large portion of its F-35s, while Canada has only just managed to secure a deal to purchase the aircraft, in a controversial agreement, despite both countries having kickstarted the project at roughly the same time over a decade ago. Comparing these two cases supports the idea that the disparity in the procurement of major platforms is based less on the details of procurement administration than upon political factors and, again, especially upon the lack of alignment between government strategic defence policy and the (air force) service doctrine found in this case.

As one would expect, the literature on procuring and utilizing Fifth-Generation fighters forms a global discourse. How a Fifth-Generation approach to military affairs in general can be implemented is not a new topic in the discipline (Reed, 2008) and has become a foundational pillar of contemporary military thinking in the post-Revolution in Military Affairs (RMA) era. At the same time, the discussion showcases how complex it is to attempt to transform the armed forces, not just because new technologies need to be introduced and others phased out, but, perhaps critically, because the use of these new tools rests on the absorption and implementation of new operational philosophies (Adamson & Snyder, 2017) both at the political and operational levels.

This is very true of fighter aircraft which are at the leading edge of defence technology development. Unlike other such technologies—including drones and anti-tank and anti-aircraft missiles which are revolutionizing infantry and tank warfare—aircraft are very expensive and require

economies of scale if maintenance and training costs are not to become overwhelming. That is, while one may speak of a single aircraft, just as with ships, nations deal with aircraft fleets and thus procurement in this area is also of the Type 4 nature.

The expectations placed on these aircrafts are very high (Harper, 2017), and the technology itself comes bundled with many complex and interconnected strategic, political and procurement choices. Extremely evident politically, and in terms of the media, is the often very high cost commitments and technological sophistication that is required to produce and operate these platforms. Once again, as the two cases discussed below amply demonstrate, it is very apparent that governments and armed forces need to display and maintain a continual alignment of intents regarding military doctrine and defence policy in order to ensure successful procurement in this area.

The US F-35 Lightning II Joint Strike Fighter (JSF), on which we focus in this chapter, was developed not simply as a weapons platform but also as a key pillar of a future ‘netcentric’ operating concept, or integrated network for battlefield information and communication through the inclusion of advanced sensors and joint operations capability alongside the airframe itself. The JSF is intended to replace a variety of existing platforms which are ageing and lack such a capability (GAO, 2016), and it has the potential to transform many facets of how multiple service branches, and air forces in particular, understand and implement their doctrine and operations.

Designed and produced by Lockheed Martin Corporation in conventional take-off and landing (F-35A), STOVL (F-35B) and carrier-based (F-35C) configurations, the JSF was intended from inception to become the lynchpin of air warfare for US-centred alliances. It is not as advanced in some regards as the F-22 fighter, which is retained exclusively by the United States, but was designed to take on multiple roles including battlefield co-ordination which the F-22 does not, and specifically to be sold to allies on a cash purchase basis. Of the more than 3100 planned aircraft (see Table 2.1), it was expected from the outset that the United States would purchase around 2456 and the rest would be accounted for by sales to partner countries, Security Cooperative Participants and other military exports.

Purchasing the new jet fighter is not just a matter of procurement cycles, however: global political and strategic choices have been a key facet of the discourse (Chapman, 2019; Hellemeier, 2019; Vucetic, 2013). Not

the least of these choices has been whether a country's strategic and operational framework and doctrines should (and can) be adapted to Fifth-Generation platforms (Petrelli, 2020). While the race towards integrated battlefield information management (netcentric) warfare appears a given, especially after the disastrous Russian invasion of Ukraine demonstrated its relevance, the military and strategic dimensions of this choice have often been mixed with important political and economic ones (Vucetic & Rydberg, 2015), in particular for a platform like the JSF which represents a significant financial commitment and close linkages with the United States.

As a case in point, the United Kingdom, alone among the NATO Allies choosing to join the programme as a Tier-1 partner, soon discovered that the choice was less than straightforward (Antill & Ito, 2013). The development of the F-35 has had to deal with a litany of rising costs, not to mention hardware and software issues, the latest of which appears related to engine problems (GAO, 2022), one of the most expensive components of the plane and a critical asset for any fighter jet.

Even if Lockheed Martin is able to reduce the unit price to US\$78M from the original US\$210M (M. Stone, 2021), which is lower than the cost of an F-15 multirole fighter today, this figure is not inclusive of very high development and sustainment costs. The Government Accountability Office in the United States noted that on top of the US\$400B in acquisition costs, future administrations will need to commit US\$1.27T to sustain the planes throughout their life cycle (GAO, 2021). To make things worse from a planning perspective, this amount has continued to increase since 2012. As can be expected, political considerations have emerged around this issue: in March 2021 Rep. Adam Smith (D-Wash.), the Democratic chairman of the House Armed Services Committee, claimed that he would seek alternatives to the JSF, noting his commitment "to stop throwing money down that particular rat hole" (Gregg, 2021). While international events seem to have overtaken his opposition, in particular with the United States inking a deal for three additional tranches of F-35s, for a total of 375 units valued at US\$30B in mid-2022 (Losey, 2022), costs are likely to remain a constant issue, especially in case of misalignment between political vision and strategic posture as opponents of the project can effectively leverage these concerns, as occurred in Canada.

JSF customers are organized in multiple groups: the United States is followed by three partner tiers, which are based on the contribution that each country makes to the development costs of the F-35. The United Kingdom is the only country in Tier 1 and finances about 10% of the

planes' costs. Italy and the Netherlands, contributing just about 4%, are the Tier-2 partners, and Tier-3 partners (Australia, Canada, Denmark, Norway and lastly Turkey before its exclusion—see below) committed smaller amounts. Israel and Singapore received their fighters as members of the Security Cooperative, and everyone else qualifies under foreign military sales (see Table 4.1).

Over 865 F-35s had been delivered as of November 2022, with yearly production hovering at around 150 units. Recently, Switzerland, Finland and Germany have all finalized, or are close to finalizing, important orders for the Lightning II (Howlett et al., 2022), while the invasion of Ukraine led the Dutch government to substantially increase its order from 37 to 52 planes (Defense Brief Editorial, 2022). On 22 March 2022, Canada entered the final discussion phase for the purchase of 88 fighters and has since finalized the deal (Pugliese, 2022).

The F-35, however, while representing a unique technical capability, still has competitors offering lower costs, and thus some prospective F-35 sales have fallen through. In July 2022 Spain officially inked a €2B deal to replace its F-18s with Eurofighter Typhoons, and in December 2021, the United Arab Emirates government, which was discussing a deal for 50 JSFs, temporarily shelved it and instead ordered 80 Dassault Rafales for a total value of €17B, even if the Emirates noted that these two contracts are not mutually exclusive and that the Rafales are only a part of the UAE's military modernization programme (Reuters, 2021). These setbacks may be partially offset by the Greek government's request to acquire 20 fighters to equip one of its squadrons, with a possible option for a second squadron (Reuters, 2022), and by the decision in July 2022 of the Czech government to launch formal negotiation to purchase 24 F-35As to replace its Saab Gripen (Adamowski, 2022). Turkey, while excluded from the group of countries that would receive the F-35 after it acquired the S-400 (SA-21) Triumf surface-to-air missile (SAM) system from Russia, is currently leveraging the Russian invasion of Ukraine to support the argument that it should still be allowed to receive the fighters (Altun, 2022; Tennant, 2022).

On the other hand, even if costs are not paramount, some key NATO partners are not involved in the development of the JSF: France, Germany and Spain have been working on their own Next Generation Fighter (NGF) aircraft. This programme is supposed to develop a Sixth-Generation Fighter, but introduction of the aircraft has now been pushed to around 2050, with Airbus delaying progress given that the programme leadership

Table 4.1 Programme of record purchase commitments for JSFs

<i>Country</i>	<i>Programme of record</i>	<i>Active (2022)</i>	<i>Variant</i>
USA	2456	265 (A); 114 (B/C); 26 (C)	A (1763), B (353), C (340)
UK ^a	138	25 (02/2022) ^b	B
Australia	100	54 (09/2022)	A
Belgium	34	–	A
Canada ^c	88	–	A
Denmark	27	6 (07/2022)	A
Czech Rep. ^c	24	–	A
Finland	64	–	A
Germany	35	–	A
Greece	20	–	A
Italy	90	16 (A); 3 (B)	A (60), B (30)
Israel	50	27	A
Japan	147	23 (version unspecified)	A (105) B (42)
Netherlands	52	21	A
Norway	52	37 (08/2022)	A
Poland	32	–	A
Singapore ^d	4	–	A
South Korea	60	40 (10/2022)	A
Switzerland	36	–	A
Turkey ^e	100	–	A
UAE ^f	50	–	A

Source: Lockheed-Martin; Flight Global (2021)

^aThe UK's commitment may not be reached; the country has signed agreements for 74 frames, as of late 2022, the rest are options

^bOne RAF F-35B crashed during take-off from the deck of HMS *Queen Elizabeth* in November 2021, reducing the number at the time to 47

^cCanada and the Czech Republic are currently negotiating with Lockheed Martin the final stage of the bid

^dSingapore holds an option for an additional eight F-35B

^eTurkey was removed from the programme in 2021

^fThe UAE government temporarily suspended negotiation in December 2021

went to Dassault (Charpentreau, 2022). Despite this, Germany, as mentioned above, has committed to purchasing F-35s for the Luftwaffe in the wake of the Russian invasion of Ukraine. The United Kingdom is also currently working on its own Future Combat Air System (FCAS), the Tempest fighter, for which a demonstrator is set to fly within five years

(Ministry of Defence, 2022). British progress is indeed drawing attention from other key F-35 customers, such as Japan (Bartlett-Imadegawa, 2022), and Italy's Leonardo, the latter having signed a cooperation agreement with BAE Systems to work on various systems for the new fighter. Notwithstanding these recent obstacles, the F-35 now has a global presence and Lockheed Martin continues to connect with interested countries.

In the literature on the F-35, the commercial success of the fighter has generally been analysed strictly in grand strategic terms, often interpreting it as a result of close bilateral military relations between the United States and its allies (Tago & Vucetic, 2013), or as a logical response to increased threats from rival powers such as Russia and the PRC which require many countries to acquire greater and more up-to-date military capacity (Chapman, 2019; Charles & Sinnewe, 2015; Kawasaki, 2021; Zaffran & Erwes, 2015). Some armed forces, it is argued, have struggled to align their strategic doctrines with JSF platform procurement (Migone et al., 2022) and have chosen alternative aircraft as a result.

These macro-level concerns can also be seen to intersect with more micro-level ones, as concerns around costs have led some partners to scale back the number of units they originally planned to acquire. Strategic concerns still matter, however, as acquisition of planes like the Russian Su-57, which may have originally been seen as an alternative in some countries in eastern Europe, is no longer politically acceptable for US alliance partners (Karnozov, 2020), compounding general questions about the feasibility of the programme (Martin, 2020).

However, costs, and the strategic importance of US alliances, are not the only factors which have driven F-35 acquisition decisions. Here too, as in the *Type 26* case, service doctrine and its degree of alignment with government defence policy can be seen to have been an important variable affecting successful procurement. Once again recent Canadian and Australian experiences with this same platform decision, and their very different results, are telling.

In this chapter we compare the Australian and Canadian trajectories towards procuring the JSF to investigate the significance of these different aspects of military procurement. As noted above, the results have been polar opposites—with Australia already having the plane in hand while Canada remains years away from operational deployment—and in trying to understand why this is the case, answers again can be seen to range beyond the details and nuances of complex procurement processes and industrial offset packages, to structural issues linked to conflicts between

Air Force doctrine and defence policy goals (Collins, 2021). The details of the two cases are set out below.

4.1 THE AUSTRALIAN F-35 PROCUREMENT CASE

As noted above, Australia, while being a Tier-3 partner—the same as Canada in the F-35 programme—as of November 2022 had already received 54 F-35As, and the entire original contract of 72 aircraft of the first tranche of the country's purchase is expected to be delivered by 2023, potentially to be followed by another 28 fighters in a second tranche (Thorn, 2022). Canada, instead, has only just entered the initial stages of negotiation for its planned purchase of 88 F-35A aircraft. How do we explain this variable outcome?

The answer requires a historical investigation, beginning in the mid-1960s when Australia overtook Canada in terms of the percentage of GDP it budgeted for defence. As we have seen in the *Type 26* frigate case, since the Second World War Australia has had a defence strategy that has favoured close ties with the United States (Henry, 2020), and this was an important factor in directing its procurement towards the F-35. It follows the established trend of the RAAF acquiring US-designed and built F-111s and F-18s in the 1970s and 1990s and attempting to purchase the F-22 (Defense Industry Daily, 2010). But this in itself is not enough to explain the discrepant decisions since the same variable is found in the Canadian case.

The difference between the two countries' strategic posture can be found, however, in the Australian need to operate as a middle power in the Pacific theatre alongside the United States, where a resurgent PRC is the major pacing challenge, whereas maintenance of some independence from its overpowering neighbour is more of a concern for Canada. Australia, in its complex role as a regional power in Southeast Asia and the South Pacific-Indian Ocean region, needs to balance autonomy in its defence policy approach with the necessity of responding to the activities of both global and regional hegemony such as China and Indonesia (Lee, 2020). As a result of these geographical realities and strategic approaches, and on the basis of close cooperation against the Japanese in the Second World War, Australian and American forces have traditionally achieved a high level of interoperability. This integration has been underscored by the military role played by Australia in US-led interventions abroad including in Vietnam and more recently in Afghanistan and Iraq (Frühling, 2018).

As we saw in the case of the Navy, Australian defence policy has traditionally brought together local, regional and global defence dimensions (Cheeseman, 1991) within the scope of a dominant strategic vision. Australia preferred a forward defence approach until the mid-1960s (Cheeseman, 1991; Reynolds, 1999) when, beginning with the Vietnam War, the notion of defence self-reliance became increasingly important. Australian military and political leaders alike have recognized that in the event of conflict, Allied forces and supplies may not easily or quickly arrive in Australia: consider the potential complexity of supplies reaching Australia from North America or Europe if the country were at war with Indonesia or the PRC (Department of Defence, 1976, 1987; Frühling, 2014).

This strategic situation has led to two cognate policy approaches that reverberate to this day upon Australia's force structure and defence choices. First, as discussed above, it was decided that Australia needed a maritime defence-in-depth approach that could employ overlapping sea, air and land assets. These assets would then need to maintain a constant technological edge against regional competitors to contain potential threats. And who better than the United States to ensure this edge? A good example of this scaffolded partnership is the long-standing operation of US bombers in the Pacific country, which recently culminated in the agreement to position six US nuclear-capable B-52s at the Tindall Air Base during the dry season (Booth, 2022). The second approach is related to ensuring that Australia prioritizes its defence industry, with significant capacity to produce, service, maintain and arm its vehicles, aircraft and vessels, built into the domestic sphere (Department of Defence, 2009; Frühling, 2014), and achieving some degree of defence autarky that could mitigate some of the geostrategic risks Australia faces.

None of this is true for Canada, relative to the intensity of the geostrategic situation faced by Australia: the PRC does represent a threat for Ottawa, but given the proximity of Canada to the United States, the Chinese threat is much more distant and less centred on direct military challenges than is the case in Australia. Furthermore, access to military hardware is extremely unlikely to ever be an issue given the long land border and multiple transportation links Canada shares with the United States. However, on the political side, Canadian governments are wary of becoming too 'cozily' associated with US operations and political dynamics, and so are more likely to commit to domestic solutions to avoid accusations of relinquishing Canadian sovereignty by becoming overly reliant

on supplies and platforms linked too closely to its powerful southern neighbour.

As we have seen in the case of the Australian frigate programme, ADF doctrine, force structure and government defence policy form closely connected and self-supporting pillars, thus ensuring effective procurement and an active domestic defence industry. This argument is often reiterated and developed in formal policy documents including the *First Principles Review: Creating One Industry* (Department of Defence, 2015) and in the subsequent follow-up defence white paper of 2016 (Department of Defence, 2016b). In the same year, the Department of Defence's (2016a) defence industry policy statement stressed the very central place held by that industrial sector if Australia's self-reliance policy is to succeed. In 2019 the government once again reiterated this relevance, not just in terms of building a skilled workforce but also in terms of delivering critical innovation as the country took on very large new defence investment projects (Department of Defence, 2019).

Beside its policy statements, the federal government of Australia is engaged in fostering the development of a favourable environment for domestic industry, having taken on a variety of practical initiatives ranging from developing closer academia-industry connections, commitment to reducing the administrative burdens of procurement processes themselves, and generally has worked to rationalize the defence industry sector and support its efforts to export products. Between 2018 and 2021, for example, the Australian government operated the Sovereign Industrial Capability Priority Grants Program through what is now the Office of Defence Industry Support, making important contributions to the sector by supporting various industrial priorities.

At a general level, a cross-platform multi-year investment plan (see Fig. 4.1) has represented a core Australian defence strategic policy approach (Department of Defence, 2016c). Starting from the three 2016 documents, the strategic plan went on to develop, as we saw in the preceding chapter, the Naval Shipbuilding Plan (NSP) and progressively continued the process of alignment between new defence procurement, domestic industrial output and capacity, and strategic defence policy (Department of Defence, 2017). Canberra, in its 2018 *Defence Industrial Capability Plan* (Department of Defence, 2018), reiterated that it sought to build a strong and sustainable Australian defence industry and expected that foreign companies wanting to sell military hardware to Australia would make substantial investments in the country's economy.



Fig. 4.1 Australian defence industry policy agenda. (Source: Department of Defence (2018, p. 14))

Effectively, Australian governments leveraged the procurement cycles designed to modernize and recapitalize the Australian armed forces to increase the level of development of the domestic defence industry and to combine this with the general concern for macro-force interoperability with the United States. This approach has been particularly evident when we look at the RAAF and the F-35 decision.

In the case of the acquisition of the JSF, the blending of meso- and macro-level concerns that we described above is very evident. Multiple Australian governments supported local industry in their bids to support the development of the F-35, and there is a clear expectation of large returns for Australian companies over the life cycle of the aircraft and through the construction of the F-35 support infrastructure, which on its own is worth billions (Chapman, 2019).

Australia started to become interested in the F-35 in the late 1990s (Defence Acquisition Organisation, 1999). The aircraft was a good match with the country's defence policy discussed above (Department of Defence, 2000) since the RAAF needs to project its air combat capability in a potentially contested environment, and—in more prosaic terms—was facing the end of operational life for both its F-18s and F-111s. A figure

of up to 100 aircraft, meant to replace these aircraft, also aligned with the expectation of significant domestic industrial benefits (Department of Defence, 2000).

From the very beginning it was evident that Australia intended to retain effective aerospace capabilities that would allow the country to remain aligned with larger regional and global actors unlike, for example, New Zealand which lost this capability in the 1990s (Owen et al., 2000). The government of Australia started the AIR 6000 project in late 2001, which was tasked with developing the F-35 acquisition programme. AIR 6000 framed the acquisition as a complex system-of-systems problem, where multiple actors were in play, alongside multiple stakeholders' subjective preferences and uncertainty, which needed to be managed and aligned with the needs of the ADF (Staker, 2001). In June 2002 Australia joined the formal JSF development programme as a Tier-3 partner; from there things moved very quickly and in October all necessary agreements had been signed, which marked the end of the research phase of the procurement process.

In sum, the new aircraft aligned well with Australia's strategic and industrial priorities. By joining the partnership agreement at the Tier-3 level, Australia contributed between 1% and 2% to the development costs of the fighter (Chapman, 2019) but also ensured that domestic companies would now be considered for the lucrative contracts that would surround the development, construction and maintenance of the aircraft (which they did quite successfully). The Australian government thus aligned its goals of supporting and strengthening the local aerospace industry within the lens of increased defence self-reliance.

However relevant they may have been, nevertheless, industrial benefits were not the only reason that led to the choice of the F-35. The JSF was to replace two different types of aircraft: the F-18, which is a multirole attack fighter, and the F-111, which instead—while having a multirole designation—was, in the Australian context, focused on long-range strike and electronic warfare roles. The F-35 was billed as being able to cover all of these roles, which made it the obvious successor, especially considering that at the same time the Australians had been unable to convince the US Congress to authorize the sale of F-22s to their Pacific ally. RAAF doctrine over this period is set out in Table 4.2 below.

Under these conditions the macro- and meso-level aspects of government defence policy and service doctrine were also well aligned towards supporting the F-35 as the future aircraft platform of the RAAF, an

important condition for the success of such large-scale military procurement (Migone et al., 2022; Howlett et al., 2023).

By 2006, the Australian government had signed a Memorandum of Agreement and committed to spend AU\$90B on the F-35. Despite increasing costs, the Defence Department never wavered (Chapman, 2019) in regard to this spending commitment. With both the administration and service supporting the acquisition of the JSF, even the election of the Labor government, and a review of both Australia's air combat capability requirements (Department of Defence, 2008) and of its strategic defence approach (Department of Defence, 2009) that followed, did not result in a shift.

Table 4.2 Australian RAAF doctrine 1970–2022

<i>Decade</i>	<i>Core roles</i>	<i>Challenges</i>	<i>Doctrinal papers</i>
1970s	Expeditionary, combined arms, transport and sustainment, maritime patrol, peacekeeping operations	Outdated equipment Force modernization	USAF/RAF doctrine
1980s	Continental defence (air control)	Air-sea gap No modern service doctrine Loss of rotary wing to Army	1984 and 1987 doctrine efforts
1990s	Continental defence (air control) Peacekeeping operations	Privatization, declining manpower and budgets	Air Power Manual (1990, 1994, 1998), Operational Air Doctrine Manual (1999)
2000s	Continental defence (air control) Expeditionary and joint operations (strike and mobility) Sustainment ISR Peacekeeping operations	Middle east commitments New capability integration	Air Power Manual (2002, 2007), The Australian Experience of Air Power (2007), Future Joint Operating Concept (2007), The Future Air and Space Operating Concept (2007), The Operational Air Doctrine Manual (2009)
2010s	Continental defence (air control) Expeditionary and joint operations (strike and mobility) Sustainment ISR	New regional challenges JSF acquisition Humanitarian missions Space	Air Power Manual (2013), The Australian Experience of Air Power (2013)

To be sure, there were internal discussions and questions were raised about this procurement project: alongside the concerns regarding increased costs (Davies, 2008), the strategic validity of selecting the JSF and its tactical value when the RAAF had to replace dedicated air superiority assets also came up, but the project continued on schedule throughout this discussion (Chapman, 2019). On 17 July 2015, the Department of Environment and Energy published the approval decision for the flying operations of the F-35A and the first F-35A aircraft was accepted into Australian service in 2018. The first F-35A squadron, No. 3 Squadron, became operational in 2021. All 72 aircraft are expected to be fully operational by 2023 (Australian Air Force, n.d.).

The Australian JSF procurement success, like the Canadian failure outlined below, demonstrates once again that when there is an alignment between policy and doctrine, micro-level concerns around costs and procurement process details cannot undermine the whole procurement process. Significantly, Australia managed to articulate and maintain this alignment over a 20 year period and, as a result, the F-35 procurement proceeded largely unproblematically. However, as we show below, once again this was not the case in the Canadian experience with the F-35's.

4.2 THE CANADIAN F-35 PROCUREMENT CASE

Unlike Australia, the trajectory of Canadian F-35 procurement is largely negative. In Australia both the armed forces and various governments focused on the continuity of military capability, including cooperation and interoperability with the United States, and the RAAF's service doctrine matched the government's defence policy. In this environment, sustaining the large procurement commitments connected to the early stages of the F-35 development became possible even in the face of mounting costs. None of these conditions were present in Canada, however, and the JSF quickly joined the pantheon of procurement boondoggles experienced by the country (Migone et al., 2022; Staker & Moon, 2000).

As demonstrated in the *Type 26* frigate case, Canada's recent approach to military affairs has been conflict-riddled, and government priorities have often clashed with service doctrine and force structure desires. Conflict has emerged with the Canadian Army over the procurement of small arms, with the RCN over purchases of frigates, helicopters, fleet support ships and even for the purchase of icebreaker and offshore patrol

vessels for the country's Coast Guard. The RCAF has been no exception and these disputes were manifest in the F-35 case.

While Canada is undoubtedly aligned with North Atlantic and, in general, western strategy, its governments have had an independent approach when they found American policy to not align with domestic national concerns (Vucetic, 2006). This has often put the country at odds with other Commonwealth countries (Fawn, 2008) and in particular with Australia (O'Connor & Vucetic, 2010), the latter, as we have seen, having exhibited unusually strong support for US military interventions (Cox & O'Connor, 2012). Despite its Alliance commitments in NATO and NORAD, Canada cannot boast of the high levels of integration with the US military typical in the Australian case. Politically there are also differences between the two neighbours: while Canada did in fact commit a substantial amount of blood and treasure to the intervention in Afghanistan, Libya and the anti-Islamic State campaign, when NATO provided an 'organizational umbrella' to these operations, it refused—unlike Australia—to participate in either the Vietnam War or the 2003 invasion of Iraq.

This more autonomous approach is due in part to differing political stances in Canada and the United States but also, much like in Australia, because of the complex set of interlocking strategic interests in which the country is enmeshed. From this perspective, Canada must consider and align various priorities such as continental defence, its responsibilities as a NATO member, what has become an increasingly apparent need to project influence—at least economically—into the Asia-Pacific and ASEAN region, and the emergence of multiple challenges in the Arctic theatre where traditional rivals like Russia and the PRC have been more active and even encroaching upon Canadian sovereignty, but where the United States and the United Kingdom are also committed to international access through what are arguably Canadian internal waters.

While Canadian foreign and defence policy retains a commitment to liberal internationalism at its core, defence spending as a component of GDP has consistently been declining (McKay, 2018), and only recently did Canada begin to promote any kind of strategic focus on the Pacific and the Arctic (Nossal, 2018). Unlike the RCN, which did not have the equipment required for an Arctic presence of any kind during the Cold War, given the proximity of the USSR to Canada and the role of the Canadian Arctic as a flight path for Soviet bombers and missiles, the RCAF did always have an Arctic focus and a strong presence in the north (Johnson,

2021; Lajeunesse & Lackenbauer, 2017). In the post-Cold War era this threat at first declined but has since been heightened in recent years due to the resurgence of Russia as a threat and the increased interest of the PRC in the region (Huebert, 2019).

If Australia needs only to think about defence-in-depth on its northern border, Canada has the same problem, but across three points of the compass. This makes RCAF doctrine a key part of Canadian defence, but, unlike Australia, this effort takes place against the backdrop of stagnant military spending and ageing force assets. These considerations are especially relevant when the procurement process is connected to complex and very expensive military platforms like the F-35 or when new assets are commissioned which, like the AOPVs, are inadequate in themselves to counter serious military threats in the Arctic from Russia and the PRC—or any other nation for that matter (Migone et al., 2022).

In recent decades, as we have seen, in Canada the attempts at replacing equipment for the RCN and RCAF have generally been desultory, delayed and disputed. This case has already been made for the RCN where all stakeholders have to show for well over 20 years of process are three AOPVs—and no steel has even been cut to replace either the country's ageing *Halifax*-class frigates or *Victoria*-class submarines (Migone et al., 2022). The same is true of the attempts to replace the ageing fleet of Canadian CF-18s, which have dragged on for over a decade and produced a rather large set of issues but no aircraft to date.

This is telling since, like in Australia, around 2000 as Canada was modernizing its existing CF-18 fleet for the first time, the Liberal government of Paul Martin also chose to join the F-35 programme as a Tier-3 partner. Like Australia, this was intended to trade Canadian firm access to the potential contracts in the development of the JSF in return for a relatively small government contribution to fighter development costs.

This was a logical choice: the RCAF had firmly indicated that it saw the JSF as the preferred choice for its next generation fighter, and, interestingly, all federal governments since this date have kept their commitment to support these development costs, allowing Canadian companies to compete for various contracts related to the F-35, even while the procurement process for the plane itself has floundered. However, unlike what we saw in the Australian case, this build-up of domestic arms manufacturing capacity does not form a core aspect of Canadian defence policy but rather is more opportunistic in nature.

The initial desire of the RCAF to acquire the JSF had strong bipartisan support in Canada, and even when the Conservative Party replaced the Liberals in Ottawa, the DND continued with the procurement process by signing a Memorandum of Agreement that committed Canada to spend over half a billion dollars in development costs and to begin a contracting process aimed at acquiring the F-35. On the RCAF doctrine over the study period, see Table 4.3.

The purchase of the F-35 became strategically embedded in the Harper Conservative's *Canada First Defence Strategy* white paper of 2008. There, significantly, it was said to be expected to enhance Canada's continental defence role and to reinforce its international expeditionary capacity rather than cement Canada's alliance with the United States (Department of National Defence, 2008).

On the basis of this service and government policy alignment, the procurement project was initially budgeted for C\$9B and was welcomed by General Deschamps, who was at the time the RCAF's Chief of the Air Staff (CAS), when he noted that the expense of procuring the JSF would compare with those that had been expended on the CF-18 (Deschamps, 2010), a statement that would later come back to haunt the government.

Soon after 2008, however, unlike in Australia where the F-35 programme continued to move forward, in Canada the airframe procurement process began to unravel. Like elsewhere around the globe (Chapman, 2019) the federal government now had to re-balance rapidly escalating development costs against the financial fallout and budget crisis associated with the Global Financial Crisis. Frequent and more intense questions about what role a multi-platform, limited range, fighter like the F-35 could play in terms of Canada's vast trans-continental air defence started to be asked and, soon enough, the press and the political opposition started to wonder whether or not the initial enthusiasm with which the JSF had been welcomed was in fact fully warranted.

The Department of National Defence nevertheless stuck by its initial statement that only the F-35 could effectively replace the CF-18, and in July 2010 the Conservative government seemed to stand by this policy as it modified the procurement regulations to allow the process to proceed single-sourced, skipping the bid phase entirely and proceeding directly to tender.

Cost projections soon increased, however, and as the initial C\$9B topped C\$16B, the Conservatives came under attack from the opposition parties, especially the Liberals, regarding their contracting choices

Table 4.3 RCAF doctrine

<i>Decade</i>	<i>Core roles</i>	<i>Challenges</i>	<i>Doctrinal papers</i>
1970s	Air Defence, Air Support	Survival after unification Air Command reestablished, NORAD commitment NATO commitment	USAF/RAF doctrine
1980s	Air Defence, Air Support	NORAD commitment NATO commitment CF-18 integration	Conduct of Air Operations (1981); Basic Aerospace Doctrine (1989)
1990s	Air Combat, Air Support, Sustainment, Joint Operations	Post-Cold War demobilization/ budget cuts Lack of updated doctrine Service reorganization NORAD commitment NATO commitment Humanitarian missions	Out of the Sun—Aerospace Doctrine for the Canadian Forces (1997)
2000s	National Security and Aerospace Power Surveillance and Reconnaissance Sustainment Joint Operations	Army support operations NORAD commitment NATO commitment Joint doctrine integration Humanitarian missions Renewed Russian Arctic flights	Vectors 2020: An Air Force Strategic Assessment (2000); Aerospace Doctrine Study (2002); The Aerospace Capability Framework (2003); Canadian Forces Aerospace Doctrine (2006, 2007, 2010)
2010s	National Security and Aerospace Power Surveillance and Reconnaissance Sustainment Joint Operations	CF-18 replacement Arctic and continental defence NORAD commitment NATO commitment Humanitarian missions Space	Air Force Lessons Learned Programme Manual (2010); Royal Canadian Air Force Doctrine: Sustainment (2010, 2016); Royal Canadian Air Force Doctrine: ISR (2012, 2017)

(Chapman, 2019). Criticism of the F-35 procurement process was not limited to the political side alone: the Parliamentary Budget Officer (PBO) (2011a) again played a key role, issuing a scathing report in which it noted that the real costs of the programme would be close to C\$30B and

furthermore predicted a delay in the delivery of the JSF of at least five years in addition to much higher upgrade costs than the DND had initially assumed.

The bad news was not restricted to a condemnation of poor financial forecasting: in a separate report, the Budget Office also noted that DND had failed to provide an effective way for the PBO to assess either its financial methodology or its risk-management strategy. Not only that, but it also noted that the government had presented cost estimates for only 20-, rather than the full 30-, year period over which DND had budgeted the fighter's lifespan (Parliamentary Budget Officer, 2011b).

The political situation so deteriorated that the minority Conservative government was defeated on 25 March 2011 in a non-confidence vote, at least partially generated by what was emerging as a potential financial debacle centred on the F-35 (Nossal, 2012). Although in May that year the Conservatives won a new majority, strengthening their position in parliament, this did not accelerate the acquisition of the F-35. Rather, the Office of the Auditor General (OAG) added its voice to the litany of problems that had already emerged before the election, citing more issues with the procurement process in its 2012 report. Alongside stressing that the financial information presented was incomplete, the report stressed that both DND and Public Works and Government Services Canada (the department that was responsible for the contracting side of the project) had failed in their procedural duties. DND had been sloppy and quite late in providing documentation and information the Auditor General deemed critical to the success of the contract, while Public Works had accepted the sole-sourced bid without having in hand all of the backing documentation that it was required to obtain under Canadian rules.

The Conservative government, similar to how it approached the ship-building issue, tried to address these challenges by setting up an ad hoc unit within Public Works and Government Services Canada, which was called the National Fighter Procurement Secretariat (NFPS) to better manage the details of procurement process around the JSF, while at the same time ordering that the process itself should undergo various reviews.

Among the latter was an independent report to the Treasury Board Secretariat, commissioned with the consulting company KPMG, to examine the proposed JSF procurement from 2010 to 2052, which was delivered in November 2012 (KPMG, 2012). The report, predictably, confirmed that costs would be much higher than what the DND had argued, likely reaching C\$45B (although the report noted that some

future expenses could not be estimated, so that the final figures would remain uncertain). The report put forward a series of recommendations targeting the project's life cycle costing and financial management within DND, indirectly confirming that earlier steps in that direction had not been as efficient and effective as they could have been.

This disarray ultimately led the Canadian F-35 procurement programme to be challenged along three axes: first, because of its cost, then because of the procurement process itself and how the platform was selected without bids, and finally by a debate about whether the JSF would actually align with the RCAF's needs (McKillip & McKillip, 2014; Staples, 2011).

These concerns delayed the ability of the RCAF to replace the CF-18s in its fleet, and planes that were supposed to start being phased out at the beginning of the 21st century were instead updated to extend their service life to 2020. A new Liberal government elected in 2015 made its opposition to the F-35s clear. In opposition, Liberal leader Justin Trudeau had made the issue into a prominent plank in the Liberals' election platform stating, "We will not buy the F-35 fighter jet," and that if elected a cheaper alternative would be found. Trudeau condemned the programme and the role of the Harper Conservative government in putting it forward. "The Conservative government never actually justified or explained why they felt Canada needed a Fifth-Generation fighter," Trudeau said in 2015. "They just talked about it like it was obvious. It was obvious, as we saw through the entire process, that they were particularly, and some might say unreasonably or unhealthily, attached to the F-35 aircraft" (Passifume, 2022).

On attaining office, the Liberals announced they would hold an open competition, excluding the F-35, to pick a more suitable aircraft but then waffled on whether or not the JSF would in fact be excluded. In June 2016, the media reported multiple sources indicating that the Liberals had decided to buy Boeing's F/A-18E/F Super Hornet as an 'interim' fighter, after Defence Minister Harjit Sajjan warned that the country continued to face an immediate military capability gap. The F-18E/Fs would be retained until a new competition could be held on a Fifth-Generation aircraft. Minister of Public Services and Procurement Judy Foote subsequently indicated that a full competition would be held for a new fighter and that the new process would likely take five years.

Showing its disarray, the Liberal government, however, then decided not to buy an interim fleet of Super Hornets in retaliation for Boeing

launching a trade action against Canada over subsidies the government paid to Bombardier to produce its C-series of airliners in Canada. Instead, ultimately Canada was forced to buy 25 of the used RAAF F/A-18s (Brewster, 2017) being phased out by its own successful F-35 purchases, which were subsequently delivered between January 2019 and May 2021 (McLaughlin, 2021), just in order to keep its fleet flying.

The competition for new planes at the time was expected to see a contract award in 2019 and first deliveries in 2025. In July 2019 the federal government released a formal request for proposals to purchase 88 new fighters. In a face-saving gesture the request invited Airbus, Boeing, Saab *and* Lockheed Martin to submit proposals for their Eurofighter Typhoon, F/A-18E/F Super Hornet, Gripen and JSF (Howlett et al., 2022).

Dassault, however, announced it would not place a bid for the competition in November 2018, citing cost and development issues with properly integrating the aircraft to the NORAD and Five Eyes requirements as being too high, in addition to the high cost of integrating American weapon systems. Similarly, Airbus withdrew the Eurofighter Typhoon from the competition in August 2019, citing the same reasons as Dassault, leaving only the F/A-18E/F Super Hornet, F-35 and the Gripen E as potential contenders. Finally, in November 2021, Boeing was informed that the Super Hornet bid did not in fact meet Canada's requirements, leaving the F-35A Lightning II and the Saab 39 Gripen E as the two remaining candidates in the competition.

Faced with this potential choice, on 28 March 2022 the Liberal Government reversed course completely and announced for the second time that the competition had placed the F-35A first and that it planned to buy 88 of them, effectively having wasted seven years and setting things back to where they had been under the Conservatives prior to 2015 (Brewster, 2022). By now, however, after a seven-year delay, a large number of other countries were lined up to receive their F-35s and Canada is likely to face additional increased wait times before any deliveries. As of the time of writing, therefore, like in the case of the CSC frigates, not a single new Fifth-Generation plane has been acquired, with any potential delivery many years off in the future, despite over 20 years of planning.

4.3 COMPARISON OF THE AUSTRALIAN AND CANADIAN F-35 PROCUREMENT PROCESSES AND OUTCOMES

As in the frigate case, the comparison of Australian successes with Canadian procurement failures is telling. Unlike in the Australian case, where the focus was on maintaining the country's special connection with the United States and the perceived need to build a domestic armaments industry that would support the country's strategic outlook were instrumental in answering any questions raised about the appropriateness of the JSF, mounting criticism of the F-35 process and costs in Canada after 2010 marked the beginning of a period of increased scrutiny based on annual reports from DND (Department of National Defence, 2013b, 2014), externally commissioned reviews of the aircraft (Raymond Chabot Grant Thornton, 2013), and what potential alternatives were in place (Sanson and Associates, 2013). All of these issues challenged the initial RCAF and government agreement that the F-35 was what Canada needed.

Throughout this procurement crisis, the RCAF maintained that the F-35 was necessary for the Canadian defence system, especially if the country wanted to retain a combat advantage (Department of National Defence, 2013a) over potential adversaries. However, this strategic doctrine argument required continued federal government support and alignment if it was to be implemented and this was not forthcoming in Canada as it had been in Australia. The alignment evaporated after the 2015 federal election, when a Liberal government led by Justin Trudeau was elected on a platform which included scrapping the F-35 deal.

The new Liberal leader had openly campaigned against the very expensive F-35 project (CBC News, 2015), promising to reverse the Conservative decision, and soon after his victory Trudeau indeed proceeded to launch a competition to replace the soon-to-be obsolescent CF-18s, a competition that was designed *not* to select the very expensive F-35. The Prime Minister had even argued that with the money saved by not purchasing the Fifth-Generation fighter, the government could tackle the replacement of the rapidly ageing main vessels in RCN—an ironic commitment considering how little progress has also been made on that front, as we have seen (Migone et al., 2022).

By 2017, at the same time as Australia could look forward to, and plan for, the imminent delivery of its first F-35s, the government in Ottawa instead had just launched an ill-fated 'Future Fighter Capability Project' which was supposed to facilitate the procurement of new Canadian

fighters through an open-bidding process. With estimated costs between C\$15B and C\$19B the project was expected to begin replacing the CF-18s no earlier than 2025. When the Rafale and Typhoon options quickly bowed out and, unexpectedly, the Canadian government excluded Boeing from the competition in late-2021—on the hoary grounds that its industrial offset package was insufficient—this alternative strategy was in complete disarray (CBC News, 2021). Canada was back to square one: would Ottawa select the lower-cost, Fourth-Generation, multirole Gripen, from (then) a non-NATO country, as the backbone of its air force for the next four decades (Hunter, 2021), or would it circle back to the F-35, which the Liberal government had originally expressly campaigned against?¹

This deadlock was only broken a few months later when, completing a six-year-long U-turn, the Liberal government finally entered negotiations to buy the same 88 planes that had originally been planned for (Brewster, 2022). While some in the press reported that such long delays may in fact have saved some money in operational costs because many systems on the JSF have now reached maturity (Berthiaume, 2022), time was once again of the essence and Canada requested that its first nine fully operational jets be delivered no later than 2027, already five years beyond the first deliveries to Australia, although there is no guarantee and some scepticism about whether or not this will occur (Pugliese, 2022; Editorial Board, 2022).

The Australian and Canadian F-35 cases thus again both reveal the policy and political dynamics that surround large-scale military procurement and add an important dimension to this field and to that concerned with the procurement of large systems in general. The different outcomes we explored above stress that processes of modernization like the ones that are usually attached to procuring major weapons systems not only require alignment between government priorities and military strategy and doctrine, but that this alignment must continue throughout the lengthy period required for the purchase to be finalized and the systems delivered (Auditor General of Canada, 2020; Collins, 2015).

¹Meanwhile, however, Canada kept contributing its Tier-3 funding share to the programme. There were various reasons for this: on the one hand, continued participation would allow the country to purchase F-35s at a discounted rate if this was ever chosen and—probably more relevant—the overall contribution was less than half the value of the contracts Canadian companies had received over time (Chapman, 2019, p. 215).

Retaining this alignment is easier if there are long-term cross-party (bipartisan) commitments to a shared strategic vision. This alignment is evident in both the Australian frigate and F-35 cases, where the country's defence strategy is set in a fairly straightforward political-military-economic environment: Australia has a close economic and political interrelationship with the PRC which is unstable and potentially threatening, while Canada's only realistic threat comes from its close neighbour and long-time ally the United States.

Australia needs to balance multiple military goals across what is a very broad geographical, political and strategic theatre, and this is usually done by trying to balance self-reliance with close military ties to the United States. Within these parameters, the air defence doctrine of the RAAF was consistently linked to the purchase of the F-35 as 'the right tool for the job' and as an American product that would fit the broader Australian geostrategic posture. The government was aligned with this approach using the F-35 procurement programme as an investment opportunity for Australian companies. With this level of agreement, procurement itself never quite became a significant electoral or political issue and the programme successfully navigated questions of rising costs and platform capability.

For the past 20 years, Canada, on the other hand, has struggled with procurement to replace its ageing CF-18s: starting with the non-competitive tender for the F-35 that—once costs ballooned—fell victim to political and electoral objections, which appeared so strong as to convince most observers that the RCAF would end up receiving more Boeing CF-18s.²

From a military strategy perspective Canada needs to consider more layers of action than Australia: Primary among these is maintaining the country's role in NORAD and its position within NATO while balancing—mostly for internal political calculations—a more autonomous position vis-à-vis the United States than is the case with Australia.

Both the doctrine and force structure plans of the RCAF clearly pointed to the F-35 as the one aircraft that would ensure success, and early on the

²This was especially as the 2017 *Strong, Secure, Engaged* strategic policy paper (Department of National Defence, 2017) called for the acquisition of 88 CF-18s to replace its fleet of jet fighters and as the RCAF moved to acquire second-hand F-18 Super Hornets from Australia to bridge the RCAF's needs. However, those planes are themselves ageing and prone to a variety of issues, not least of which has been the need to integrate new radars into older airframes.

Conservative government was interested in fast-tracking its purchase. However, the politicization of the procurement decision resulted in more and more questions and objections surrounding what the RCAF was doing and that, in turn, derailed the original process leading to a complete reboot of the bid. The latter closely replicated earlier conflicts and controversies, many of which revolved around costs and industrial benefits, but now appears to be close to a positive solution that has settled—once more—on the F-35, but after close to a decade of delay. Thus, unlike Australia, Canada only inched forward in replacing its fighter fleet. A logic of close alignment with the United States (Tago & Vucetic, 2013) and an interest in a self-reliant military industry were key factors for multiple Australian governments, while RCAF doctrine and Canadian government defence priorities were unable to stay aligned in the face of electoral and partisan challenges.

This misalignment was not limited to Fifth-Generation platforms, with all of the uncertainties and questions that they entail. When some of the CF-18s were showing evident strain and a back-up plan was devised to purchase re-conditioned F-18s (ironically, from Australia), the same dynamics resurfaced. The Auditor General raised deep concerns about whether the RCAF would be able to maintain its NATO and NORAD operational goals simply through an extension of the life cycle of the CF-18 to 2035 (Auditor General of Canada, 2018). Not someone to pull punches, the Auditor General also pointed to the haemorrhage the RCAF was experiencing in terms of pilots and other key personnel, something that dated back to the Harper government, but that neither they nor the new Liberal government seemed able to reverse (Brewster, 2020).

Recent Canadian military procurement projects for major vessels and new aircraft thus can be seen to have wholly failed to either achieve or maintain a solid alignment between political vision and military doctrine about the nature of Canada's defence goals and the hardware needed to implement those goals (Migone et al., 2022). This is just as evident in the F-35 case as it is for the RCN's CSC programme, where a misalignment of defence policy and naval doctrine failed to create the alignment needed for procurement so that after almost 20 years of effort not a single frigate hull has been delivered (Migone et al., 2022). A very similar situation is apparent in the case of the F-35 where increasing financial requirements weakened the alignment required for programme success and led to a ten-year delay (Migone et al., 2022).

The Australian F-35 case, likewise, bears out the importance of this alignment, but by showcasing its role in leading to a much more successful deployment compared to Canada. In Australia, defence policy and service doctrine matched and this match was maintained so that the procurement of multiple large-scale weapon systems was possible. The relatively low impact that politicization has had on the Australian debate is a very important factor here; that is, alignment may be a necessary but not sufficient condition for success. In the early stages of the Canadian F-35 procurement process an alignment was in place but mounting costs, the impact of various independent reports about the way in which the programme was managed, and ultimately the electoralization of the decision led to failure despite the fact that everyone agreed that the F-18 had to be replaced.

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Analysis: Military Platform Procurement Strategies and the Need for Political and Doctrinal Alignment in Type 4 Purchases

Abstract Each procurement situation has different payoffs and costs for governments, both administratively and politically. Large-scale procurement, given its duration and size, has the possibility of highly uncertain benefits along with potentially high costs. The *Type 26* frigate and F-35 aircraft cases in Canada and Australia show that for successful procurement/implementation to occur what is needed is a clear set of objectives and targets established by a government which can then be matched to specific tools and tool calibrations by delivery departments or agencies *and for this congruence to be maintained over time and through changes in government*. The Canadian case studies demonstrate how the beginning of the twenty-first century brought with it rapidly shifting strategic priorities that left the CAF in difficulty due to its inflexible forces' doctrine within the context of changing government strategic goals and objectives in the post-Cold War period. In Australia, however, dealing with the same weapons systems at the same time, the alignment of government policy and forces' doctrine was maintained, resulting in projects proceeding faster, and with all-party agreement, than was the case or existed in Canada.

Keywords Policy procurement • Defence procurement • Doctrinal alignment • Service doctrine • Canada • Australia • *Type 26* frigate • F-35 fighters • Public administration • Joint forces • Geostrategy • Policy alignment • Force structure • Procurement strategies • Cost-effectiveness • Budgeting • Capitalization • Policy tools

The two cases of large-scale military platform purchases presented above demonstrate how it is essential for military platform procurement that political-economic and strategic considerations meet and that this alignment continues over time in order to deal with the constraints and issues that arise during the project planning and commissioning stages of platform acquisition. These latter issues include longstanding problems such as changing budgeting constraints, shifting electoral calculations of governments and opposition parties, changes in the partisan composition of government, emerging complex performance demands, and design alterations (Caldwell & Howard, 2014).

As the two comparative cases show, in military procurement these features are common and linked to requirements for integration with multinational allied forces, the self-interest of multiple actors ranging from regional suppliers to armed service practitioners, and involve political-economic considerations impacting issues such as national sovereignty and industrial or regional ‘offsets’ (King & Sekerka, 2017). None of these requirements figure as prominently in shorter-term, lower-cost Type 1 or Type 2 procurement, for example, or even in similarly large Type 3 kinds.

As was noted in the Introduction, achieving cooperation between governments and private and administrative stakeholders in these cases often depends upon what advantages cooperation provides to which actor(s) and when (Calcara, 2018, 2020).

Each procurement situation has different payoffs and costs for governments, both administratively and politically, and Type 4 procurement, given its duration and size, has the possibility of highly uncertain benefits for incumbent governments along with potentially high costs (see Table 5.1).

Type 4 situations thus often have *minimal payoff* for present-day governments that therefore often try to shift them into one of the other procurement quadrants using several common strategies. A strategy of postponing payment accompanied by prominent announcements of

Table 5.1 Types 4 procurement revisited

		<i>Duration</i>	
		<i>Single government term</i>	<i>Multiple government term</i>
Number of units	<i>Few</i>	Low costs/all benefits	Low costs/uncertain benefits
	<i>Many</i>	High costs/all blame	High cost/uncertain blame

intended purchases, for example, can be seen as an effort to ‘frontload’ benefits while costs are pushed down the road, hopefully onto a successor government who happens to be in office when the bill comes due. Similarly, another strategy is to reduce overall expenses by bringing in revenues in the form of industrial offsets, thereby reducing the costs and shifting the project into a different quadrant. A third strategy, as mentioned in Chap. 2, is to try to convert a large purchase into a series of smaller-scale, potentially reversible, decisions, but this may not always be possible. And a fourth strategy is simply to buy less of the platform (e.g. fewer ships) while a fifth is to buy the platform ‘off the shelf’ which also can help reduce costs. These pathways were set out in Fig. 2.1.

Which of these strategies is adopted by governments depends both on the technology embedded in the purchase—for instance, whether or not it is severable—and upon whether or not government policy is ‘aligned’ or congruent with military doctrine (Migone et al., 2022; Glas et al., 2017; Plantinga et al., 2020). The two platform cases outlined here, and their different outcomes in two similar countries, stress the importance of this alignment factor.

What the cases show, as argued in Chap. 2, is that for successful procurement/implementation to occur what is needed is a clear set of objectives and targets established by a government which can then be matched to specific tools and tool calibrations by delivery departments or agencies *and for this congruence to be maintained over time and through changes in government* (Almarri & Blackwell, 2014; Vaidya et al., 2006). Alignment is key since without it there is no chance of an amicable/sellable off-the-shelf or a downsized purchase option even if these are technically feasible, and the odds of a kick-the-can-down-the-road outcome increase substantially. With alignment in place, on the other hand, a successful procurement outcome that matches service needs is more likely.

The frigate purchase cases show that while a navy may have a clear vision of its intended roles (or not), if national defence policy does not align with these roles (and *vice versa*), the navy’s force structure will be unlikely to emerge in as coherent, or as timely, a manner as occurred in Australia. There, unlike Canada, the government has been able to do incremental/continuous build (or in the case of submarines and airplanes, even off-the-shelf purchasing).

Part of the problem can be seen from the fact that, doctrinally, the RCN and the RAN have very different service priorities. Throughout the study period the RCN considered itself as an instrument of Canadian

collective defence and a key contributor to NATO's ASW capability, but its relative importance for Canadian national security declined in the post-Cold War period (Collins, 2021a). RCN funding was usually given third priority against the Army and RCAF while the RAN, on the other hand, saw itself as the essential guarantor of Australia's defence and, in terms of defence policy, Australian governments repeatedly affirmed that role, providing the service with high priority for new construction and funding. The RCN, comparatively, was more frequently the recipient of low funding, and Canadian governments tended to perceive of the RCN as mainly a coastal defence organization, with some occasional expeditionary roles (see Appendices A and B).

These problems were exacerbated by the end of the Cold War where Conservative defence policy was heavily focused on Arctic sovereignty. The AOPVs became a central Harper government procurement item, and these were inserted into the warship package before construction could start on the Navy's preferred blue-water CSC frigate replacements. Australian governments, conversely, perceived the end of the Cold War as a period of new uncertainty, with *increasing* risks (Markowski & Hall, 1998, p. 8).

This misalignment of doctrine and policy has left the RCN with only a residual fleet and coastal defence role, recognized as fatal for the Navy's grander ambitions to be a contributor to what has been described as the "maritime century" (McFadden, 2010). While most accounts by insiders of the NSPS/NSS process are self-congratulatory and whitewash this history of disagreement (Mack, 2020), this does a disservice to the country and the advancement of knowledge of large-scale procurement processes. As the present study shows, this area of government activity is highly problematic and deserves much more and much better analysis than it has received to date.

The Canadian case studies demonstrate how the beginning of the 21st century brought with it rapidly shifting strategic priorities that left the CAF in difficulty due to its inflexible doctrine within a context of changing government strategic goals and objectives in the post-Cold War period (Advisory Committee on Administrative Efficiency, 2003). The shortcomings of procurement in an age of changing defence policy goals and naval doctrine were highlighted as early as 1998 in an Auditor General report dedicated to the modernization of the Canadian Forces, which cited a lack of clear priorities, in particular, as a root cause of a poor procurement framework (Auditor General of Canada, 1998).

Table 5.2 Distribution of foreign policy approaches by levels of threat and capacity

		<i>Threat</i>	
		<i>Low</i>	<i>High</i>
Capacity	<i>Low</i>	Idealistic (sovereigntist) foreign policy, minimal defence spending <i>(Canada since 1815)</i>	Realist (mutual defence) foreign policy, reliance on Allies or international law <i>(UK during the Cold War, Australia today)</i>
	<i>High</i>	Idealistic (imperialist or isolationist) foreign policy, luxury defence spending <i>(the United States or Germany before the First World War, UK from 1815 to the 1854 Crimean war)</i>	Realist (balance of power) foreign policy, military-industrial complex <i>(the United States during Cold War, UK from 1856 to 1919)</i>

The cases also show that political engagement with purchasing takes place through the governmental definition of the foreign and defence policy approach that will determine the strategic posture of a country. Table 5.2 provides a categorization of foreign policy types based on two fundamental variables: the perception of the level of threat a state is exposed to, and the capacity of the same state to respond to such threats; both set on a low to high continuum.

As illustrated in the table, Australia and Canada can be seen to occupy two different spaces in this strategic plane. While both are—in relative terms—low capacity states in the military sphere as they can at best aspire to middle power ranking and lack political imperatives that would enable broadly more militaristic goals, however, their threat perception is different. The narrative underpinning both the F-35 and the *Hunter*-class procurement processes in the Australian military and within the country's political/administrative system largely agreed on the premise that the end of the Soviet-American balance of power, coupled with the rise of the PRC as a regional and incipient global hegemon, would trigger increased instability and risk and would necessitate additional Australian military expenditures. In Canada, on the other hand, an expected post-Cold War peace dividend was premised precisely on reduced military expenditures although this view was not shared by the military services.

		FINANCIAL AVAILABILITY	
		HIGH	LOW
STRATEGY/POLICY ALIGNMENT	HIGH	<p>Successful Procurement</p> <p>F-35 HIMARS</p> <p>Hunter FF</p>	<p>Procurement of Priority Weapons</p> <p>F-35 AOPV</p>
	LOW	<p>Fragmented Procurement</p> <p>SUBS</p>	<p>Failed Procurement</p> <p>EH 101</p> <p>CSC</p>

Fig. 5.1 Military procurement space for select weapon systems

The willingness or capacity of each country to invest in military technology is a function of these imperatives. The priority that military expenses are given within the scope of Liberal democracies is uneven, but depends on the level of alignment between policy and strategy in the context of the availability of the financial resources required for large platform procurement. The Canadian defence budgeting process, in particular, has remained suboptimal (Fetterly, 2009; C. Stone, 2012b) and repeated calls for change have produced some new models but relatively little progress in terms of major systemic change (C. Stone, 2012a).

In Fig. 5.1 we arrange some of the more recent procurement efforts for Australia (blue filled) and Canada (orange filled) in this space.

While completely successful procurement is only found when both financial capacity and strategy/policy alignment are high, other intermediate outcomes like the procurement of bottom line priority weapons in the case of low financial capacity and at least some alignment, or a fragmented result if funding is available but there is limited or shifting alignment, are common. Both instances underpinned the Canadian F-35 experience which went from success to failure to (very delayed) success.

The complexities connected to these two dimensions of large-scale military procurement should not be underestimated. Both the Navy and Air Force cases examined here show this can depend on multiple factors including exogenous shocks like financial crises, political conflict, a specific strategic outlook, the perceived intensity, and the typology and geography of the threat architecture a country faces.

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Conclusion: Lessons from Military Procurement for Procurement Studies

Abstract Procurement is a hugely important but understudied aspect of public policy-making, broaching the borders between it and cognate fields such as public administration and, in the case of defence procurement between public policy studies writ large and areas such as war and defence studies. The military field, however, provides an excellent set of empirical cases for the examination of some of the most problematic types of procurement—those involving large, multi-year purchases, such as the construction of megaprojects like hydroelectric dams and nuclear power stations, which share the same characteristics as do the acquisition of large complex weapon systems like warships and aircraft. This book represents an effort to bring together the insights of different fields from public management to defence studies in order to shed light on the background of some of the largest procurement projects in Canadian and Australian history, and also to advance thinking and research on the subject of procurement more generally.

Keywords Policy procurement • Defence procurement • Doctrinal alignment • Canada • Australia • *Type 26* frigate • F-35 fighters • Public administration • Policy-making • Procurement strategies • Force structure • Service doctrine • War studies • Defence studies • Joint forces • Megaprojects

Procurement is a hugely important but understudied aspect of public policy-making.

Defence studies, in particular, provides an excellent field for the examination of the most complex type of procurement: those involving large, multi-year purchases, which characterize the acquisition of large complex weapon systems like ships and aircraft. This book represents an effort to bring together the insights of different fields from public management to defence studies in order to shed light both on the background of some of the largest procurement projects in Canadian and Australian history, and on the subject of procurement more generally.

The case studies contained in the book show that Type 4 procurement dynamics are unique in requiring large-scale government and service commitments across multiple decades. But the two platforms considered in the book have shown that there are at least two major areas of focus when we analyse large-scale military procurement from a policy perspective. On the one hand, we need to worry about the formulation phase, which includes the political and strategic dimensions of the process. The other is the implementation phase, which is more directly connected to the process of allocating resources and in particular of managing the funding that is associated with these purchases.

The F-35 cases show how vulnerable procurement efforts are to electoral, budgetary, and other political challenges, but also how politicization is only fatal where consensus/alignment on overall plans and needs does not exist. In other words, in Type 4 cases formulation problems (misalignment) can drive implementation (process) failures and lead to procurement success or failure in this category of purchases. Of course, the F-35 cases also demonstrates that even when alignment exists success is not guaranteed and procurement can also fail due to implementation process issues such as excessive politicization (Collins, 2018).

As Table 6.1 shows, there are four different possible outcomes for these kinds of processes based on the two key dimensions highlighted above. Successful procurement appears only when both the implementation and formulation phases of the process are successful. In other words, when there is alignment between the strategic and political dimensions, and the procurement process also proceeds well, then procurement success can be expected, as occurred in Australia, which tended to have better overall success compared to Canada.

In the case where just one of these variables is successful, we have intermediate situations where procurement can be either much delayed or fail

Table 6.1 Typology of large-scale procurement outcomes

		<i>Implementation (Process)</i>	
		<i>Success</i>	<i>Failure</i>
Formulation (Alignment)	<i>Success</i>	Successful procurement	Process failure
	<i>Failure</i>	Alignment failure	Complete failure

all together. In the case of implementation process failure, as Collins (2019, 2021) suggested, purchases will either be enormously delayed or never delivered.¹ Finally, the fourth quadrant encapsulates the ‘non-starter’ option, possibly embodied by the Canadian CADRE fiasco where both implementation and formulation—and financing—never came together and the project was scrapped in its entirety.

Lessons from the study are of use not just for the military, but also in many areas dealing with similar large scale and long-term purchases and projects, ranging from energy megaprojects such as dam construction to scientific research and vaccine development, amongst many others. These have all so far escaped serious and detailed analysis (Doern, 1983; Gunton, 2003; Anin et al., 2022).

The cases show that political and strategic inputs in the process of large-scale Type 4 procurement are critical in that they shape the policy agenda and the behaviours of multiple actors. In fact, the politicization of high-risk decisions, which leads to an engagement in the file by the executive, occurs exactly because of the elevated stakes and risks involved in large-scale, high-cost procurement processes (Krause & Zarit, 2022).

Since large-scale military platform procurement is a very close match for Type 4 procurement, it is unsurprising to find political engagement here. These two cases do show though that in dynamic Type 4 procurement environments it is essential for political-electoral and strategic considerations to meet and that their alignment needs to continue to deal effectively with constraints and issues that arise during planning and commissioning stages, including changing budgeting environments, shifting electoral calculations, partisan composition of government, and emerging complex performance demands (Caldwell & Howard, 2014).

¹To some extent the submarine shifts in Australia from a conventional to a nuclear-powered system falls within this category.

The frigate procurement process case studies set out above in particular illustrate how difficult it is to align governmental preferences with agency ones in large, long-term procurement situations and how disagreements, misalignments and politicization (specifically, where the blue-water force structure ambitions of the RCN conflicted with the coastal defence role imagined by multiple governments' defence policy, but also the Liberal Party elevation of the F-35 contract to an electoral issue) have crippled both ship and aircraft procurement in Canada and Canadian military security with it (Fetterly, 2009; Stone, 2012a).

The history of successful major surface warships project procurement in Canada (such as the 1970s era *Halifax*-class CPF programme) in the past, and in the Australian case, both demonstrate that Type 4 procurement success requires multi-year championship of service organization doctrine by government policy and leadership. As the successful Australian F-35 and failed Canadian JSF processes show, Type 4 projects need continual Cabinet support, or they will stall or fail altogether (Collins, 2018, p. 44; Richardson et al., 2020).

This suggests that given the long-term nature of these kinds of decisions, the development of Type 4 purchases will inevitably reflect shifting electoral calculations that affect government spending priorities as well as changes in strategic considerations that influence government and public priorities (Calcara, 2020); and that such changes must be anticipated and managed if Type 4 procurement is to proceed to a successful outcome. Here, as in many Type 4 cases—from hydroelectric dams to major highway or mass transit construction—governmental strategic or political-electoral considerations need to be aligned with agency goals and protected from unwarranted criticism so that budget constraints and complex performance requirements can be overcome and projects completed on time and on schedule (Caldwell & Howard, 2014).

When this alignment did not occur in the Canadian frigate case it was a disaster for the RCN, resulting in capability gaps as the *Tribal*-class destroyers were retired without replacement, the result of low prioritization and low defence budgets. It is now certain that the *Halifax*-class frigates will not be replaced until they have reached well over 40 years of service. Delays in starting the CSC programme, political interest in maintaining continuous building queues, combined with the 2008 financial crisis and subsequent cost inflation, significantly increased overall ship-building programme costs, in an environment where equipment costs were already predictably expected to double every eight years (Sutekh, 2001, p. 24). But, more importantly, the RCN's maritime doctrine was

not shared by any recent Canadian governments, and the service was effectively relegated to a coastal and limited Arctic defence role (as no nuclear submarines, a must have for effective Arctic defense, were considered during the study period) and its procurement ambitions left to flounder. This is significantly different from Australia where, despite high costs and political risks, Australian governments all recognized the need to maintain and cultivate capabilities through procurement commitments and shipbuilding has proceeded more or less as originally planned.

That these problems are not platform-specific but structural is clear from the historical record. Significant delays in large-scale military procurement efforts are not new in Canada: more than 15 years ago the Chief of Review Services (2006) noted that over the previous three decades DND major capital acquisition processes averaged 15 years each no matter what procurement framework was utilized or what product was being purchased (Auditor General of Canada, 2010). Due to budget constraints, and an emphasis on the domestic economy rather than a defence imperative focus, the Canadian system of military procurement has led to modernization processes in which the recapitalization cycles for major platforms have required more than 20 years (Fergusson, 2002), and invariably capability gaps and cost inflation have occurred simply as a result of these extended timeframes. The CSC project is a case in point, where a ship for ship replacement for the Navy's destroyers evolved into an ambitious, and perhaps somewhat misguided, programme to replace both the destroyers and frigates simultaneously (and coinciding with the F-35 procurement), despite the government's priorities being elsewhere (Afghanistan and the Arctic).

Thus, in the case of the CSC frigate Type 4 procurement, the study shows how difficult it is to align governmental preferences with agency ones, while the similar Type 4 F-35 process shows how political disagreements and misalignments can significantly delay procurement.

This is not to say that alignment is impossible to achieve, and the two Australian cases provide many clues about how this can occur. The two cases clearly demonstrate that successful projects require multi-year championship by the government, commonly a multi-administration commitment, and secure funding that at least matches inflation. For example, in the Canadian case, re-alignment could have occurred through the Navy embracing national sovereignty, and its associated coastal patrol and Arctic roles, or if the government shifted to a collective security priority, bringing the two into accord, as may now yet happen in the wake of the current Ukraine crisis. But when neither did so, and when the Navy continued to

insist upon a global operations capability, the result was a failed procurement process (Auditor General of Canada, 2021).

Many unanswered questions still remain around Type 4 procurement, of course. These include, for example, why governments or services would persist in their effort to obtain platforms that are clearly not moving forward (Berente et al., 2022). The dominant orthodoxy for why the Canadian government is sticking with the *Type 26* programme currently is assumed to involve sunk costs and the allure of the potential for industrial benefits (Perry, 2015). However, a misalignment lens also helps explain this since a lack of alignment reduces any urgency in product acquisitions and opens up a political space to treat the procurement as a purely political issue of either (a) who gets the benefits and who gets stuck with the bill—leading to ‘kick the can down the road’ logics or (b) as a strictly symbolic action in order to placate interested parties without actually completing a purchase or, even more cynically, without ever having any real intent to see procurement through to completion. In the case of the RCN, for example, continual delays have led to a ‘fantasy flotilla’ promotional industry kept alive by repeated bouts of governmental over-promising and under-delivering.

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APPENDIX A: DETAILED CANADIAN SURFACE COMBATANT CHRONOLOGY

<i>Year</i>	<i>CSC key events</i>	<i>Budget</i>	<i>Government ministers</i>	<i>Defence and naval staff</i>
2001	Command and Control Area Air Defence Replacement (CADRE) project underway	\$12.971B (1.2%)	DND Art Eggleton PSP Alfonso Gagliano	June: CDS General Raymond Henault (RCAF) September: CNS Vice Admiral Ron Buck CDS General Raymond Henault (RCAF) CNS Vice Admiral Ron Buck
2002	May: Parliamentary Standing Committee Report on National Defence endorses <i>Tribal</i> -class replacement	\$13.332B (1.2%)	June: DND John McCallum January: PSP Don Boudria, May: Ralph Goodale	
2003	November: Canada ratifies the United Nations Convention on the Law of the Sea (UNCLOS)	\$13.952B (1.1%)	December: DND David Pratt December: PSP Stephen Owen	CDS General Raymond Henault (RCAF) CNS Vice Admiral Ron Buck
2004		\$14.749B (1.04%)	July: DND Bill Graham July: PSP Scott Brison	CDS General Raymond Henault (RCAF) August: CNS Vice Admiral Bruce MacLean
2005	Canada's International Policy Statement mentions replacement for <i>batb</i> frigates and destroyers. May: Securing Canada's Ocean Frontiers mentions Single Class Surface Combatant (SCSC)	\$15.738B (1.05%)	DND Bill Graham PSP Scott Brison	June: CDS General Rick Hillier CNS Vice Admiral Bruce MacLean
2006		\$17.5B (1.12%)	February: DND Gordon O'Connor February: PSP Michael Fortier	CDS General Rick Hillier January: CNS Vice Admiral Drew Robertson

2007	Rear Admiral Ian Mack appointed DND's Director-General for implementation of National Shipbuilding Procurement Strategy (NSPS) Canada First defence policy states that 15 ships would be acquired, beginning in 2015, to replace existing frigates and destroyers. NSPS Office formed	\$19.2B (1.16%) \$3.1 B allocated for AOPV, + 4.3 bil over 25 years \$19.9B (1.26%)	August: DND Peter MacKay PSP Michael Fortier	CDS General Rick Hillier CNS Vice Admiral Drew Robertson
2008			DND Peter MacKay June: PSP Christian Paradis	July: CDS General Walter Natynczyk CNS Vice Admiral Drew Robertson
2009		\$20.3B (1.22%)	DND Peter MacKay PSP Christian Paradis	CDS General Walter Natynczyk June: CNS Vice Admiral P. Dean McFadden
2010	NSPS Office transferred from DND to PSP. NSPS Secretariat formed September: Solicitation of Interest and Qualification (SOIQ) issued, shortlists shipyards for NSPS packages	\$20.2B (1.14%) October: <i>Halifax</i> -class modernization project begins, \$2 bil; completed November 2016	DND Peter MacKay January: PSP Rona Ambrose	CDS General Walter Natynczyk CNS Vice Admiral P. Dean McFadden
2011	October: Irving and Seaspan announced as winners of the NSPS packages	\$20.0B (1.10%)	DND Peter MacKay PSP Rona Ambrose	CDS General Walter Natynczyk July: CNS Vice Admiral Paul Maddison
2012	January: Umbrella agreements signed with shipyards June: "definition" work begins on CSC	\$18.8B (0.99%)	DND Peter MacKay PSP Rona Ambrose	October: CDS General Thomas Lawson (RCAF) CNS Vice Admiral Paul Maddison
2013	December: RCN executive plan 2013–2017 released	\$18.5B (0.94%) November: Auditor General reports NSPS is underfunded	July: DND Rob Nicholson July: PSP Diana Finley	CDS General Thomas Lawson (RCAF) June: CNS Vice Admiral Mark Norman

(continued)

<i>Year</i>	<i>CSC key events</i>	<i>Budget</i>	<i>Government ministers</i>	<i>Defence and naval staff</i>
2014	February: Defence Procurement Strategy (DPS) announced September: decision to decommission two destroyers and two supply ships announced, reduces RCN hull capacity by 25% DPS Secretariat formed May: Most Competitive Procurement Strategy, prelude to selection of Combat Systems Integrator and Warship Design team for CSC begins February: RN Rear Admiral Steve Brunton hired (until March 2020) March: NSPS renamed NSS June: Streamlined procurement process announced October: Irving shipbuilding begins accepting bids for CSC design. Fincantieri complains that acquisition process unfairly favoured <i>Type 26</i> December: RCN's 2017–2022 plan, references task group operations with up to four surface combatants	\$18.7B (0.94%) PBO reports that AOPV project is over budget \$18.6B (0.92%) \$26B estimate for frigate replacements \$700M supply ship conversion project \$20.6B (1.2%)	DND Rob Nicholson PSP Diana Finley February: DND Jason Kenney, November: Harjit Sajjan November: PSP Judy Foote DND Harjit Sajjan PSP Judy Foote	CDS General Thomas Lawson (RCAF) CNS Vice Admiral Mark Norman July: CDS General Jonathan Vance CNS Vice Admiral Mark Norman CDS General Jonathan Vance June: CNS Vice Admiral Ron Lloyd
2015				
2016				

(continued)

2017	<p>January: Vice Admiral Mark Norman relieved of duties June: bidding for CSC design closes Strong, Secure, Engaged released, references “two naval task groups composed of up to four combatants ...” December: Franco-Italian consortium proposes building 15 FREMM hulls for Canada at fixed \$30 billion price</p>	<p>\$21.34B (1.3%) PBO reports CSC project underfunded, only enough funding for 6 hulls \$17.5B over 20 years earmarked for RCN, with \$14.6B of that for CSC (first delivery 2026) \$40-61.82B for frigate replacements estimate \$21.62B (1.3%)</p>	<p>DND Harjit Sajjan August: PSP Carla Qualtrough</p>	<p>CDS General Jonathan Vance CNS Vice Admiral Ron Lloyd</p>
2018	<p>March: Mark Norman charged with breach of trust</p>	<p>\$21.62B (1.3%)</p>	<p>DND Harjit Sajjan PSP Carla Qualtrough</p>	<p>CDS General Jonathan Vance</p>
2019	<p>October: Lockheed Martin Canada selected to lead BAE-based design consortium May: Crown drops case against Mark Norman</p>	<p>\$21.9B (1.3%) PBO estimate for CSC is \$69.8B over 26 years</p>	<p>DND Harjit Sajjan November: PSP Anita Anand</p>	<p>CNS Vice Admiral Ron Lloyd CDS General Jonathan Vance June: CNS Vice Admiral Art McDonald</p>
2020	<p>August: PBO reviewing CSC project November: PBO review indicated cost of JSS programme now at \$4.1B</p>	<p>\$30B (1.45%) August: PBO reviewing CSC project November: PBO review indicated cost of JSS programme now at \$4.1B</p>	<p>DND Harjit Sajjan PSP Anita Anand</p>	<p>CDS General Jonathan Vance CNS Vice Admiral Art McDonald</p>
2021	<p>PBO and OAG reports indicate CSC project and NSS behind schedule and over budget</p>	<p>\$4.1B</p>	<p>DND Harjit Sajjan PSP Anita Anand</p>	<p>CDS General Art McDonald CNS Vice Admiral C. A. Baines</p>

APPENDIX B: CANADIAN DEFENCE POLICY, 1964–2017

<i>Defence review</i>	<i>Policy</i>	<i>Priorities</i>	<i>Components</i>	<i>Budget</i>
Pearson-Hellyer-Sutherland, 1964	Maximum Flexibility	Collective Peacekeeping Surveillance Arms control	Programmatication, service reorganization, CF105, DDH 280, SSNs, <i>Oberon</i> -class, Canadian Airborne Regiment	1964: \$1.787B (3.4% of GDP) 1968: \$1.936 (2.5%)
Trudeau-Macdonald, 1969–1971	National Force, Strategic Balance	Sovereignty Surveillance Arms control Collective Peacekeeping	Arctic, BOMARC retirement, Centurion retirement, CF104 retirement, <i>Bonaventure</i> retirement, NATO deployment reduction, Leopard I, Orion P-3C	1969: \$1.906B (2.3%) 1979: \$4.784 (1.7%)
Trudeau II, 1980–1984	National Force, End of Detente	Sovereignty Surveillance Arms Control Collective Peacekeeping	CPF, CF-18, C7 rifle, SOUP, TRUMP, new helicopters	1980: \$5.547B (1.8%) 1984: \$9.518B (2.1%)
Mulroney-Beatty-Nielsen, 1987, 1989	Hot Cold War	Peacekeeping Collective Sovereignty Surveillance Peacekeeping Arms control	Arctic, <i>Canada</i> -class SSNs, <i>Halifax</i> -blocks, Tribal-upgrades, reorganization, CF-18	1985: \$10.187 (2.1%) 1989: \$12.724 (1.9%)
Mulroney II, 1992	Cold Peace	Collective Surveillance Sovereignty Arms control Peacekeeping	SSN cancellation, personnel reductions, maritime surveillance aircraft, AWACS programme, conventional submarines, JTF2	1990: \$13.318B (2.0%) 1993: \$13.247B (1.8%)

<i>Defence review</i>	<i>Policy</i>	<i>Priorities</i>	<i>Components</i>	<i>Budget</i>
Chretien-Collenette, 1994	Peace Dividend, New Risks	Sovereignty Collective Peacekeeping Surveillance Arms control	Sea King replacement, Maritime Coastal Defence Vessels, UN reform, CF5 retirement, <i>Oberon</i> -class retirement	1994: \$13.079B (1.7%) 1998: \$11.494B (1.3%)
Chretien II Eggleton, 1999	Revolution in Military Affairs	Sovereignty Collective Peacekeeping	Technology, <i>Province</i> -class (CADRE), Sea King replacement	1999: \$12.199B (1.2%) 2002: \$13.332B (1.2%)
Martin-Graham, 2004/2005	National Security Transformation	Collective Surveillance Sovereignty Peacekeeping Arms control	Interdepartmentalism, CSC, Sea King replacement, international crime/terrorism, pandemic response, cybersecurity, force expansion, Afghanistan	2003: \$13.952B (1.2%) 2005: \$14.7B (1.04%)
Harper-MacKay, 2008	Canada First	Sovereignty Collective Peacekeeping Surveillance	Arctic, NSPS, DPS, Projectification, F-35, CSC, C-130J, C17s, CH47Fs AOPV, JSS, Leopard II, Sea King replacement, <i>Tribal</i> -class retirement, Support ship retirement	2006: \$15.7B (1.05%) 2015: \$18.5B (0.92%)
Trudeau-Sajjan, 2017	Renewed Multilateralism	Sovereignty Surveillance Collective Peacekeeping Arms control	NSS, CSC, AOPV, multi-mission aircraft, JSS, <i>Victoria</i> -class life extension to 2030s, fighter replacement	2016: \$18.7B (0.94%) 2019: \$21.9B (-1%)

APPENDIX C: AUSTRALIAN DEFENCE POLICY, 1976–2020

<i>Defence review</i>	<i>Policy</i>	<i>Priorities</i>	<i>Components</i>	<i>Budget</i>
N/A	Expeditionary force/forward defence	Imperial defence, US alliance, communist containment	Neptune patrol aircraft, HMAS <i>Melbourne</i> , ASW	
Fraser—Killen, 1976 (Coalition)	Towards self-reliance	Maritime sovereignty, surveillance and intelligence, peacekeeping	Allied training, technological sharing and development, anti-terrorism, non-proliferation, contingency planning, five-year defence programme (FYDP), P3C Orion, new patrol boats, mirage replacement, FFG replacement, River-class modernization, DDG modernization, S2E trackers. Carrier life extension, Oberon refit, MCM vessels, Leopards, integrated air defence (IADS), heavy lift ship, CI30Hs, new survey ships, trainers, defence academy, air refuelling (707s), Steyr rifles, bilateral agreements.	\$2.12B ('76–'77), 2.23 ('77–'78), 2.39 ('78–'79), 2.55 ('79–'80), 2.73 ('80–'81) 2.6% of GDP
Hawke—Beazley, 1987 (Labor)	Layered, independent, defence	Maritime sovereignty Regional security Global stability Surveillance and intelligence Arms control, peacekeeping	Over-the-horizon radar, satellite communication station, AWACS, Blackhawk helicopters, aerial refuelling, survey vessels, experimental sonar, precision weapons, Oberon replacement, frigate replacement, four or five new destroyers, DDG modernization, light patrol frigates, Pacific Patrol Boat project, new artillery, Nulka missile defence (decoy), minehunter systems, Steyr rifles	

Keating—Ray, 1994 (Labor)	Collective defence	Maritime sovereignty Regional security Global stability Surveillance and intelligence Peacekeeping Arms control	Collins-class submarine, Joint HQ, high frequency radio, hydrographic ship replacements, unmanned aerial vehicles, AWACS, ANZAC frigates, P3C upgrade, Fremantle-class replacement/life extension, Sea King life extension, new helicopters, Huon-class minehunters, LSH replacement, F18 upgrade, new air defence missiles, Nulka decoy system, Macchi trainer aircraft replacements, Kiowa replacement, additional infantry battalion, Chinook helicopters, C130E replacement, procurement reforms	\$9.637B 1994/1995, 1.9% of GDP in 1996/1997
Howard—Moore, 2000 (Coalition); 2003 Hill, 2005, 2007 (Coalition)	Maritime strategy/ National security	Maritime sovereignty Regional security and global stability Surveillance Arms control Peacekeeping	AWACS (AEW&C), aerial refuelling (AAR) replacement, F18 upgrades and replacement, F18F super Hornets, F111 upgrades and successor, Caribou replacement, C130H refurbishment, C17s, Armed Reconnaissance Helicopters, additional transport helicopters, M113 upgrades, A/T weapons, Rapier SAM replacement, UAVs, ANZAC frigate upgrade, air defence frigates/destroyers, LSH replacement, landing craft and troop ship replacements, Collins-class life extension, Pacific Patrol Boat Project extension, Fremantle patrol boat replacement, support and supply ship replacements, Seahawk upgrades, P3C upgrades, LHDS	\$12.2B in 2000, %1.74 of GDP; \$22B in 2007/2008

(continued)

<i>Defence review</i>	<i>Policy</i>	<i>Priorities</i>	<i>Components</i>	<i>Budget</i>
(continued)				
Rudd— Fitzgibbon, 2009 (Labor)	National security II/ Renewed multilateralism	Maritime sovereignty Regional security and global stability Surveillance and intelligence Peacekeeping Arms control	F111 and F18 replacement (F-35), AWACS (AEW&C), KC30A refuellers, Collins replacement (future submarine), Collins upgrades, ANZAC replacement (future frigate), ANZAC upgrades, Air Warfare Destroyers, new MRH90 helicopters, Sea King helicopter replacement, patrol boat rationalization (Offshore Combatant Vessels), unmanned underwater systems, LHDS, new sealift ship, new landing craft, HMAS <i>Success</i> replacement, Forces Command, APC replacement, M113 upgrades, CH47D replacement, artillery, UAVs, P3C replacement, C130Js, cybersecurity operations	1.8% of GDP
Gillard—Smith, 2013 (Labor)	Indo-Pacific strategic transformation	Maritime sovereignty Regional security and global stability Surveillance and intelligence Arms control Peacekeeping	Future submarines, Air Warfare Destroyers, LHDS, MH60R seahawks, MRH90s, C27J airlifters, C17s, KC30As, new maritime patrol aircraft (P8As), F-35 JSF, new armoured vehicles, CH47F helicopters, replacement of the Armidale patrol boats, supply ships replacements (HMAS <i>Sirius</i> and <i>Success</i>), Anzac frigate replacements, EA-18G introduction, F18Es, cyber security centre, M777A2 howitzers	1.56% of GDP
Turnbull—Payne, 2016 (Coalition)	Indo-Pacific strategic transformation II	Maritime sovereignty Regional security and global stability Surveillance and intelligence Peacekeeping Arms control	Future submarines, Air Warfare Destroyers, future frigates, unmanned systems, F-35 acquisition, EA-18G, new ACR and IFVs, SF helicopters, additional C17s, upgraded C130Js, additional C27Js and CH47Fs, logistic ship life extension, <i>Collins</i> -class life extension, offshore patrol vessel replacement, MCM and hydrographic vessel update and life extension, MQ4Cs, MH60Rs, MRH90s, additional KC30As, RBS70 replacement, M1 upgrades, riverine patrol boats	< 2% (\$32.3B in 2015/2016)

<p>Morrison— Reynolds, 2020 (Coalition)</p>	<p>Pacific step-up Regional security and global stability Surveillance and intelligence Peacekeeping Arms control</p>	<p><i>Attack</i>-class submarines, <i>Hunter</i>-class frigates, <i>Arafura</i>- and <i>Guardian</i>-class patrol vessels, new sealift ships, <i>Ocean Protector</i> life extension and replacement, mine warfare vessels, BMD, satellite network, C130J replacement, unmanned aircraft, ANZAC upgrades, <i>Hobart</i>-class upgrades, MH60R upgrades, MQ9B, MC55A, MQ4C, <i>Hobart</i>-class successor, <i>Collins</i>-class life extension, salvage vessel, F18F sustainment, F-35 acquisition, E7A upgrades, P8A upgrades, additional KC30A tankers, additional C17s, M113 replacement, M1 upgrades, M777 replacement, army watercraft, Bushmaster upgrades, Tiger ARH replacement, next generation rotorcraft</p>	<p>2.1% (\$44.62B in 2021, increasing to \$48.24B in 2022/2023)</p>
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GLOSSARY

ADF	Australian Defence Force
ADI	Australian Defence Industries Ltd, Thales Australia, defence contractor
ANZAC	Australian and New Zealand Army Corps, class of RAN FFGs
AOPV/S	Arctic Offshore Patrol Vessel/Ship
ASEAN	Association of Southeast Asian Nations
ASW	Anti-Submarine Warfare
AUKUS	Australia–United Kingdom–United States trilateral security pact
AWD	Air Warfare Destroyer
BAE	British Aerospace Systems plc, multination British defence contractor
CADRE	Command and Control Air Defence Replacement
CAF	Canadian Armed Forces
CAS	Chief of the Air Staff (Canada)
CNS	Chief of the Naval Staff (Canada)
CPF	Canadian Patrol Frigate
CSC	Canadian Surface Combatant
DDG	Guided Missile Destroyer
DDH	Destroyer (Helicopter)
DND	Department of National Defence (Canada)
DOD	Department of Defence (Australia)

EEC	Exclusive Economic Zone
FCAS	Future Combat Air System
FFG	Guided Missile Frigate
FREMM	Fregate Européenne Multi-Mission, multinational Franco-Italian multipurpose frigate
GDP	Gross Domestic Product
JSF	Joint Strike Fighter (F-35)
JSS	Joint Support Ship
KPMG	Klynveld Peat Marwick Goerdeler International, consulting and accounting company
LCS	Littoral Combat Ship
LHD	Landing Helicopter Dock
MOTS	Modified Off The Shelf (design)
NATO	North Atlantic Treaty Organization
NFPS	National Fighter Procurement Secretariat
NGF	Next Generation Fighter
NORAD	North American Aerospace Defence Command
NSP	Naval Shipbuilding Plan (Australia)
NSPS	National Shipbuilding and Procurement Strategy (Canada)
NSS	National Shipbuilding Strategy (Canada)
OAG	Office of the Auditor General
OCV	Offshore Combatant Vessel
PBO	Parliamentary Budget Office
PLAN	People's Liberation Army Navy
PRC	People's Republic of China
RAAF	Royal Australian Air Force
RAF	Royal Air Force
RAN	Royal Australian Navy
RAND	Research and Development Corporation, US think tank
RCAF	Royal Canadian Air Force
RCN	Royal Canadian Navy
RMA	Revolution in Military Affairs
RN	Royal Navy
SAM	Surface-to-Air Missile
SCSC	Single Class Surface Combatant
SDR	Systems Definition Review
SSN	Nuclear Attack Submarine
STOVL	Short Take-Off and Vertical Landing
USAF	United States Air Force
USN	United States Navy

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