

# SPECIAL REPORT

A S P I

## Deciding the future

The Australian Army and the infantry fighting vehicle



Dr Albert Palazzo

October 2022

A S P I

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Cover image: Australian Army soldiers from the 7th Battalion, Royal Australian Regiment, stand with Hanwha Defense Australia Redback Infantry Fighting Vehicle (left) and Rheinmetall Lynx KF4 Infantry Fighting Vehicle (right), during trials at Puckapunyal, Victoria. Defence image library, [online](#).

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# Introduction

The aim of this report is to inform government decision-makers and the public on the ability of Project LAND 400 Phase 3—the infantry fighting vehicle (IFV) acquisition—to meet the needs of Australia. I examine a number of factors that provide context for the government’s upcoming decision, whenever that may take place. Those include how IFVs fit into the Australian strategic environment, the ease with which the ADF can deploy them, their vulnerability to threats, and the ongoing utility of armour in the light of lessons unfolding from the ongoing Russian–Ukrainian War.

To set the information into a useful context, this report explains the nature of contemporary land warfare and speculates how the Australian Army is likely to fight in a future conflict. To further assist those making the IFV decision, this report offers a number of scenarios that outline potential operations that the government may direct the ADF to undertake. It also identifies current gaps in ADF capability that will need remediation if the IFV is to achieve its potential, as well as the other opportunities that might not be taken up because of the focus on this investment.

The report’s analysis results in some key questions for decision-makers to consider as they decide on the infantry fighting vehicle acquisition:

1. Does the government believe that its IFV investment will deliver an appropriate balance of protection, lethality and mobility (both tactical and operational)?
2. Does the government agree with the requirement for an infantry vehicle with STANAG 4569 Level 6 force protection and equipped with an active protection system?
3. Is the government confident that the number of the IFVs obtained will generate a deployable and sustainable force that represents a sufficient return on the investment?
4. Does the government accept that the IFV options under consideration will enable the ADF to offset existing gaps in capability and allow it to conduct operations in a contested maritime environment, including sea and airlift, long-range fires and logistics?
5. Is the government confident that the Army’s combined arms system is deployable in contested environments, particularly in a maritime scenario?
6. Does the government believe that the IFV will provide utility in the range of contingencies that the government envisages the ADF will need to meet?
7. Does the government agree that the IFV will contribute to the requirement that the ADF be able to shape, deter and respond to threats as mandated in the 2020 Defence Strategic Update (DSU)?

# Project LAND 400: a brief outline

The objective of LAND 400 is to replace the Army's fleet of ageing light armoured vehicles: the Australian light armoured vehicle (ASLAV) and the even older M113 armoured personnel carrier (APC). The ASLAV has served the Army well, including seeing combat in the Iraq and Afghanistan wars. However, in the 25 years since its introduction, the lethality of weapons systems available to potential adversaries has increased to the point that they now exceed ASLAV protection limits, as well as the government's appetite for casualty risk.

The M113 joined the Army in 1965 and served throughout the Vietnam conflict. The APC is a type of lightly armoured vehicle that's designed to carry infantry to within striking range of an objective. The infantry then exit the APC and fight their way onto the objective. In terms of role, the M113 is the equivalent of the modern Bushmaster, which is not considered a combat platform. They're both essentially transport vehicles. In 2001, the Army undertook a project to upgrade 431 of its M113s. Despite the upgrade, the M113 remains hopelessly obsolete for contemporary combat conditions—its blast resistance offers far less protection than the Bushmaster—and can be deployed only into the most benign environments.

Defence divided LAND 400 into 4 phases.

- Phase 1—Scoping work to define the project requirements
- Phase 2—Acquisition of 225 combat reconnaissance vehicles (CRVs)
- Phase 3—Acquisition of up to 450 IFVs
- Phase 4—Implementation of a capability assurance package.

In addition to the LAND 400 CRV and IFV acquisitions, Defence has already committed to the purchase of other types of armoured vehicle for the Army. Those include the upgrade of the Army's fleet of main battle tanks (LAND 907 Phase 2), the receipt of armoured engineer vehicles (LAND 8160 Phase 1) and the acquisition of self-propelled howitzers (LAND 8116). In addition, under LAND 121 Phase 4 the Army is obtaining 1,100 Hawkei protected mobility vehicles (PMVs) light, on top of the 1,052 Bushmaster PMVs already acquired. All these programs constitute a deliberate pattern to harden the Army in the face of an increasingly lethal environment.

With the government's acceptance of Phase 1, the identification of suitable vehicles began. In March 2018, the government selected the Rheinmetall Boxer as the Phase 2 CRV. Rheinmetall built the first 25 Boxers in Germany and delivered them in 2019. By that point, the purchase had been reduced to 211; the remaining 186 vehicles will be assembled in Queensland.

## The IFV options

Defence issued the LAND 400 Phase 3 request for tender in August 2019 and received four submissions. In September 2019, the government announced that Defence had identified two vehicles that best met its specifications. They were Rheinmetall Defence Australia Lynx KF41 (Figure 1) and the Hanwha Defense Australia Redback (Figure 2). A two-year risk-mitigation process followed, to test and evaluate the vehicles and allow the tenderers to refine their offers. The government's decision on which IFV to procure and in what number is expected later this year.<sup>1</sup> The cost of Phase 3 is expected to be between \$18 billion and \$27 billion; the exact figure is not publicly known due to ongoing discussions with both companies.

Figure 1: The Rheinmetall Defence Australia Lynx KF41



Source: Rheinmetall Defence Australia, [online](#).

Figure 2: The Hanwha Defense Australia Redback IFV



Source: Department of Defence, [online](#).

The Lynx and Redback may come in a number of variants. Among the possibilities are mortar carriers, ambulances and repair and command vehicles. Details of the potential variations aren't available at this time, since their selection is subject to the Army's ongoing negotiations with the tenderers.

## What Australia will get for \$27 billion

While \$27 billion is a large sum of money, the figure does cover considerably more than just the cost of the vehicles. It includes all expenditure associated with the provision of what Defence calls the 'fundamental inputs to capability' (FICs)—that is, the resources and activities needed to manage, support and develop a capability, all of which need to be in place if the ADF is to achieve the capability's desired performance. The FICs include inputs such as training, training areas, facilities and personnel, and their inclusion in the acquisition price has the goal of providing decision-makers with a better understanding of the true cost of an acquisition. The \$27 billion figure also includes the cost of sustaining the IFV fleet for the first five years. After five years, sustainment will be provided by a separately resourced fiscal line. This would include the existing M113 sustainment line, although significant additional monies will be needed because the Army expects the IFV sustainment to be more costly than that of the vehicle it replaces.<sup>2</sup>

There's also an indirect cost that should be mentioned. The M113 has been in service since the mid-1960s. It first saw service in the Vietnam War, and its retirement has been long overdue. While the ADF saved money by postponing the M113 replacement, it also meant that the Army retained in service a vehicle that had little war-fighting utility. Therefore, there's a case to be made that the IVF purchase cost includes a degree of institutional capability neglect, and it would be better now to spend money on a vehicle that can actually be used.

## The LAND 400 Phase 3 vehicles

The task of an IFV is twofold: to carry and to fight. The IFV carries infantry in its passenger compartment while it advances in conjunction with tanks, other vehicles and supporting fire to the objective. The term the Army gives to the transported soldiers is 'dismounts'. Because of its protection level, the IFV is able to transport infantry to the objective, or even over and through it, in relative safety from small-arms fire, hits from small-calibre guns and bursts of high-explosive artillery shells. It should be recognised that, as we see in Ukraine, larger calibre rounds, such as those fired by a tank, anti-tank missiles and rocket-propelled grenades will penetrate and destroy any IFV. Protection on the battlefield is a relative term and doesn't just include armour plate. While absolute safety can't be achieved, being inside an IFV is safer than being in an APC or outside of a vehicle.

# Features of an IFV

Both the IFVs the Australian Army is assessing offer four critical features that will enable them to fulfil their projected role.

## Protection

Arguably, the most important feature of both IFVs under consideration is their level of protection, both physically and electronically, including their mounting of active protection systems (APSs). The IFV tender specification required the vehicles to meet a NATO standard called STANAG 4569 Level 6. This is a rating system of the protection levels a light armoured vehicle provides for its occupants (a different standard covers the armour of heavier vehicles, such as tanks). To meet the Level 6 standard, a vehicle's armour must prevent penetration by a 30-mm round from a range of 500 metres against the vehicle's frontal arc, as well as the blast (and shrapnel) of a 155-mm high-explosive round detonated at a range of 10 metres. By contrast, the ADF's existing M113 fleet is rated at STANAG 4569 Level 2, which means that it can only keep out fire from an AK47 rifle, a grenade detonation and the blast of a 155-mm high-explosive round at a range of 80 metres. Level 6, therefore, offers much better protection. Augmenting the crew's protection is the vehicle's APS which is intended to defeat or deflect an incoming round from any direction, by either soft (electronic) or hard (kinetic) means. This further reduces, but doesn't eliminate, the likelihood of a hit penetrating the vehicle, resulting in crew casualties. The trade-off in seeking a vehicle with the STANAG 4569 Level 6 security and an APC is that the cost is greater and the weight heavier for an IFV than for an APC with less protection.

## Situational awareness

The second major feature of the proposed capability is the sensor system mounted on the vehicles. Earlier APCs, such as Australia's ASLAV and M113, are from the optical age. The vehicle's commander views the world through a scope that has a limited arc of vision and requires the commander to rotate the turret to change views. Such sights also lack the ability to enhance points of interest and see only in the visible light spectrum.

By contrast, the IFVs under consideration are of the digital age and mount sensors that generate a 360-degree view onto a touch screen. The sensors detect movement and changes from previous images, as well as radiation emissions (such as the signal generated by a radio). If something moves, the system alerts the vehicle's commander and, if ordered, the gun swings and locks on the target. The touch screen can highlight sections of interest, which the commander can enhance to provide greater detail. The system also detects when a hostile force is playing a laser on the vehicle, warning the commander to take evasive action, such as firing smoke. This is a state-of-the-art system that provides the commander with much better situational awareness than is possible with an optical system and, as a result, offers greater protection to the vehicle and the crew.

## Connectivity

The IFV's advanced communication systems feature importantly in the vehicle's capabilities. The goal is to be able to use an IFV to connect across the joint force and provide command and control to other ADF elements. The plan, if achieved, would allow an IFV to serve as a persistent sensor and communications node for a theatre commander and provide a level of persistent sensing, communicating and integrating that can't be obtained by air or sea platforms that tend to be on station for limited periods. If this wider Defence aspirational goal is achieved, these vehicles would not only offer tactical utility for combat but also form part of the ADF's operational-level command and control network. However, to achieve that aspiration will require digital coordination and interconnection between and within the three services to a degree that hasn't been reached to date.

## Weapons

The IFVs under consideration have powerful weapons that can engage enemy IFVs and lightly armoured or unarmoured vehicles, while providing their accompanying infantry with supporting fire. The IFV's Spike missiles outrange the enemy vehicle's guns and are able to engage and destroy armoured vehicles up to and including tanks. While contemporary APCs, such as the Mowag Piranha and Israeli Eitan are capable of carrying equivalent weapons similar to the Lynx and Redback, they're wheeled, which sacrifices a degree of cross-country mobility, and come with less force protection (usually STANAG 4569 Level 4).

Figure 3: Hanwha Defense Australia Redback IFV (front) and Rheinmetall Defence Australia Lynx KF41 IFV (back), conduct LAND 400 Phase 3 user evaluation trials at Puckapunyal Military Area, Victoria



Source: Australian Army, [online](#).

# IFV challenges compared to APCs

The IFV's benefits are offset by several features that have ramifications for the utility of the vehicles.

## Comparative weight of IFV and APC

Both the Lynx and the Redback are heavy and large. The Lynx weighs 45 tonnes while the Redback weighs 42 tonnes, and both are approximately 3.6 metres high. The weight is a function of the protection level that the Army has sought, as well as the powerful armaments they carry. Contemporary APCs such as the Piranha and Eitan are lighter than the Lynx and Redback, but that's mainly due to their lighter armour and being wheeled. As is discussed below, the weight of the Phase 3 vehicles has implications for the ADF's ability to deploy them on operations.

## Number of soldiers carried

The Lynx and Redback are designed to carry six dismounts in their passenger compartments. Both IFVs have a crew of three. This means that the maximum number of soldiers that the IFV carries is less than for the vehicle it's replacing, as well as for contemporary APCs such as the Piranha and Eitan, which can carry between five and 12 dismounts. While the Army will be able to transport fewer soldiers per vehicle, this continues a longstanding trend in warfare: as weapons become more lethal, fewer soldiers are visible on the battlefield. Additionally, the IFV has the ability to carry soldiers—depending on tactical circumstances—directly to the objective, whereas with an APC they must dismount at some distance and are likely to incur casualties as they fight to the objective.

## Cost, including that of losing an IFV

The IFVs' estimated cost of up to \$27 billion includes considerable FIC expenses as well as the cost of five years of sustainment.

The vehicle itself, however, is only part of what constitutes a capability. An IFV requires a crew and passengers, who also come with a cost. The three crew and six dismounts, including their training and education in addition to wages and other expenditures, represent an investment on the part of the government. While some may find it disquieting to assign soldiers a monetary value, it's the reality. The death of a soldier involves both the loss of the expenditure consumed to achieve the soldier's proficiency and the cost of producing a replacement. We can cut corners on training to save money, but the result is low-quality soldiers who die quickly in combat, as the war in Ukraine demonstrates. The same can be said of the difference in cost between a vehicle with a high-protective value and a vehicle with a lesser one. When the government considers the IFV acquisition it might also include in its deliberations the cost of replacing the soldiers who might have been lost in a vehicle with a lower level of protection.

In addition to financial costs, the loss of a vehicle or vehicles potentially comes with a tactical cost, including the possibility of operational failure. If too many vehicles are damaged or destroyed, the result may be a loss of tactical momentum to the point that an attack comes to a halt with the objective unmet. In addition, casualty evacuations may hamper manoeuvre or distract a commander, again possibly leading to mission failure. Thus, less robust vehicles, which have lower battlefield survival prospects, come with greater tactical risk that includes not just the potential for more casualties but also momentum loss leading to mission failure.

Figure 4: A Lynx KF41 IFV firing a 30-mm tracer round on a test range in Germany



Source: Rheinmetall Defence Australia, [online](#).

# The strategic environment

It's widely understood by the government, Defence and the national security community that Australia is facing a more challenging and dangerous future. The potential threats Australia will need to deal with—notably the multiplying effects of a changing climate and a more direct Chinese military presence in Australia's near region—are becoming more evident as well as increasing in intensity. As the Deputy Prime Minister and Minister for Defence, Richard Marles, has observed, this is the most strategically complex period since the end of World War II.<sup>3</sup> China is challenging the rules-based order, while climate change represents another possible threat to the security of Australia and the region. Additionally, weapons proliferation is taking place, and non-state groups now routinely gain access to powerful and lethal combat systems that were formally the remit of only well-organised state-based militaries. Consequently, operations against such well-armed groups now require levels of force protection that were previously considered unnecessary.

The previous Australian Government, in its 2020 DSU accepted that a greater investment in the nation's security architecture was needed if the country were to remain safe and its interests assured. The September 2021 announcement of the security agreement between the US, the UK and Australia further underscored the government's concerns. In response to a security environment in which some countries have become more assertive and coercive, the Australian Government has announced its intention to acquire a range of new platforms. How it will fund those acquisitions is not clear; for example, the nuclear-powered submarine program will require well above \$100 billion. As noted by writers in *The Strategist*, the government will need to allocate additional monies if the ADF is to achieve those procurements.<sup>4</sup>

The 2020 DSU's guidance instructs the ADF 'to *shape* Australia's strategic environment, *deter* actions against our interests and, when required, *respond* with credible military force'.<sup>5</sup> The report also admits that, while high-intensity conflict in the Indo-Pacific remains unlikely, the possibility of its occurrence is less remote than previously believed. Other commentators haven't limited themselves to such diplomatic language: one senior bureaucrat stated that we 'again hear the beating drums of war'.<sup>6</sup> Across much of the national security community, the forecast for conflict is expressed in alarming terms. For example, ASPI's Malcolm Davis put the odds of war with China over Taiwan at 70% to 80%.<sup>7</sup> Another analysis put the estimate at 45%.<sup>8</sup> Similar language is heard in the US where government officials increasingly anticipate a move by China against Taiwan.<sup>9</sup>

Unfortunately, the 2020 DSU, other than requiring the ADF to respond with a credible force, lacks specificity both on the nature of the war the ADF is to prepare for and its intensity. Perhaps such detail is in non-public documents. What can be said about the future security environment is that, even if Australia has no interest in war, war may have an interest in Australia.

## Waging modern war

For most of humanity's war-fighting history, the waging of war could be conveniently divided into war on the land, on the sea, and later in the air. In turn, the land, sea and air have each been the domain of a particular service (an army, a navy or an air force) that 'owned' the preparation for and waging of war in its particular domain. In friction with this idea of domain ownership is the reality that there's always been a degree of overlap between the three domains. In recent decades, however, technological advances have meant that the overlap between the domains is large and growing. As a result, each domain can affect actions in another without the impediment of distance far more than in the past. Moreover, due to improvements in sensor technology, the time is fast approaching in which, when a target is found, a commander can assign to it the best available shooter, no matter which service it belongs to. With the addition of the space and cyber domains, warfare now exists in, through and across five domains.

In contemporary war, a commander coordinates the effects of land, sea, air, space and cyber assets across a joint battlespace to meet a common plan and objective. Today, the overlap among the domains is ever widening and, consequently, the Australian Army will be able to influence the other domains to a much greater extent than formerly possible. Within a theatre-wide space, depending on the circumstances, warfare could range from a close contact in which adversaries can see each other to a battle in which a commander allocates the fires of numerous shooters, in different domains, upon a distant target. What this means is that all ADF platforms, ranging from a future IFV to a future frigate, must be able to coordinate and share information with other systems in order to achieve desired outcomes. They must all be able to wage war not as individual parts but as components of a larger system.

The specifications for the IFV required tenderers to provide a vehicle that would be capable of operating in this system-dominated way of war as future defence investment and development bring more of this aspiration into being. The Lynx and Redback are expected to contribute to the fight beyond the range of their guns or the dismounts they carry. The sensors and communication technologies they possess could, with the assistance of the other services, allow them to serve as nodes in a theatre-sized contest, in a connected way, supporting all domains. Of course, other technologies, such as a low-orbit satellite system, could also fulfil or supplement that function, if the government prefers.

## The Russian–Ukrainian war and the future of armour

The most recent conflict that can help inform the government's decision on LAND 400 Phase 3 is the current war in Ukraine. It's far too early to discern its enduring lessons, but some observations are possible.

### The toll of war in Ukraine

To even the unobservant, it's clear that the Ukrainians have destroyed a large number of Russian tanks and other armoured vehicles. Reliable and precise figures of Russian losses aren't available, but one estimate suggests that as of late May the Ukrainians had destroyed about 1,000 of the invader's tanks.<sup>10</sup> As of mid-June, Ukraine claims to have destroyed:

- 1,440 tanks
- 3,528 armoured combat vehicles
- 772 artillery systems
- 179 helicopters.

Ukrainian sources also say that the Russians have suffered more than 32,000 casualties.<sup>11</sup>

The images of destroyed Russian vehicles that litter the battlefields of eastern Ukraine (Figure 5) have led some to conclude that the tank, and other armoured vehicles more generally, have had their day.<sup>12</sup> An article in *The Atlantic* concludes that Russian losses illustrate the diminishing value of large and heavy military platforms. The sinking of the Russian cruiser *Moskva* illustrates the risks large ships also face.<sup>13</sup>

Figure 5: A destroyed Russian main battle tank, July 2022



Source: Ukrainian Defence Ministry, [online](#).

### Why Russian armour has proven vulnerable

Russian armour has proven vulnerable to a single soldier armed with an anti-tank weapon, such as the US Javelin or the UK Next Generation Light Anti-Tank Weapon, as well as to armed drones including the US Switchblade and other weapon systems such as traditional artillery strikes. Some opinion makers believe that such weapons call into question the survivability of armoured vehicles. Clearly, a contributing factor to losses in Ukraine has been the systemic failings of the Russian Army in its conduct of Putin's war.

Although it initiated the war, Russia has proven incapable of waging a joint war of manoeuvre, leading one commentator to highlight Russian military incompetence in the destruction of its armoured fighting vehicles and went on to describe its performance as 'spectacularly poor'.<sup>14</sup> Compounding Russia's losses is its use of platforms that lack modern levels of protection, including active protection systems. Russia's performance can be summarised as follows:

- The Russian force that invaded Ukraine contains a large number of poorly trained conscripts. Green troops never fare well against troops with good training.
- The Russian Army seems to have forgotten the practice of combined arms and joint warfare. All too often, tanks and other armoured vehicles have advanced without support. Since World War II, it has been known that unsupported tanks are very vulnerable to tank-killing teams. They clearly remain vulnerable to the anti-tank weapons available now.
- While modern Russian armoured vehicles have been destroyed, many of the Russian vehicles destroyed have been old or even obsolete. The T72 tank entered service in 1973, and the presence of museum-ready T62s suggests a shortage of modern platforms in the Russian fleet.<sup>15</sup> The BMP-1, an IFV, was too poorly protected for service in Afghanistan against the *mujahidin*, yet has been used in Ukraine.
- The failure of the Russian Air Force to control the airspace above its ground troops and weaknesses in counter-drone systems have allowed Ukraine to locate Russian positions using uncrewed systems. Once a position is found, Ukraine's artillery bombards the position. The main killer of Russian armoured vehicles has been artillery employed in conjunction with drones as sensor/fire teams.
- The terrible state of Russian logistics has resulted in many tanks and other armoured vehicles running out of fuel and being abandoned. One estimate places captured vehicles as accounting for approximately half of Russian losses, showing how critical it is to have the ability to deploy, sustain and support even the best armoured vehicles.
- Russian command and control has been abysmal, resulting in troops being committed to battle in a disjointed and uncoordinated manner, which has resulted in heavy casualties. Of course, some of this may simply be a new illustration of an old truth about the 'fog of war'.

To help Ukraine, the Australian Government has donated equipment, including howitzers, and—despite their inferior protection and combat survival—Bushmaster PMVs and M113 APCs (Figure 6).

Figure 6: An Australian M113 being shipped to Ukraine



Source: Department of Defence, [online](#).

## A failure of appreciation and skill

Russia's losses can be attributed, in summary, to a military being caught out at a transition point in the art of war. Its leaders failed to appreciate the lethality of the Ukrainian military, including its ability to destroy Russian systems and platforms, especially its armoured vehicles. And Russia did not provide its forces with equipment, leadership or training appropriate to the conditions. It's not too strong to state that the Russians invaded Ukraine with a force that wasn't fit for purpose. This means that, while noting Russian losses, the lesson of the Russian–Ukrainian War is that the jury is still out on the future utility of armoured vehicles employed in other scenarios by other forces.

Russia isn't the first nation to be caught out by an unanticipated shift in the character of war. In the 1990s, the Canadian Army embarked on a policy to lighten the force, which seemed appropriate for the peacekeeping missions in which it had participated. However, in Afghanistan, it discovered that its wheeled light armoured vehicles—a variant of the ASLAV—were too light for the threat environment. Consequently, Canada decided to up-armour and acquired Leopard 2 Tanks from its NATO allies, which it deployed to Kandahar.<sup>16</sup>

## Casualty avoidance

If the lethality of the modern battlefield has motivated the Australian Army to up-armour, the government has also contributed to that trend by consistently signalling that force protection is a priority for operations. Since the invasion of Iraq in 2003, the government has sent a clear message that it expects the ADF to minimise the potential for casualties. The ADF has responded by providing its deployed forces with rules of engagement that have severely restricted what the deployed force can and can't do in order to manage risk and by providing protected-mobility transport. By and large, this has worked. Throughout the Iraq War, the ADF had only two fatalities, both non-combat related, while in Afghanistan the toll was 41 killed. For war-fighting missions, those figures are remarkably low.

If the Australian Government wants to minimise casualties, one way is to provide equipment that offers enhanced protection. The IFVs under consideration do that. Of course, there are other ways to minimise casualties that don't require the purchase of a heavily armoured vehicle. They include a reliance on restrictive rules of engagement, fighting from a distance with forces that don't directly engage an enemy, avoiding the need to seize and hold ground, eschewing operations that involve close contact with civilian populations, and refusing to fight. In addition, the government could seek diplomatic solutions to minimise the threats that the nation faces. All are valid courses of action, depending on the strategic circumstances and how much risk the government is willing to accept. Yet, in war the enemy also gets a say, in which case keeping soldiers alive may come down to the tools they are given and how they are trained to use them.

## Alliance management

Australia's alliance with the US is the foundation upon which Australian security rests. Every Defence review makes this clear, as do the nation's leaders. Shortly after taking office, Prime Minister Anthony Albanese met with President Joe Biden and they jointly announced their intention to make the alliance stronger. Albanese went on to say that the two countries were 'great mates'.<sup>17</sup>

When Australia has participated in recent US-led coalition operations, it's done so with the knowledge that joining those wars was the best way for Australia to stand out among the US's many allies. John Howard understood this when he committed the ADF to the wars in Afghanistan and Iraq.

Australia must build the Army that it believes it needs to provide for its security, but Australia's security is tied up with the willingness of the US to provide assistance if needed. Thus, while alliance management is not a core factor in the Phase 3 decision, it does have some implications for the ADF's ongoing interaction with the US military. Since neither of the IFV finalists is American, it simplifies the selection from an industrial relations point of view. However, the compatibility of the IFV with American command and control procedures, for example, could prove important if an Australian force again needs to fight as part of a US-led coalition.

## Scenarios

In order to provide additional context for the LAND 400 Phase 3 decision, it's helpful to investigate a number of scenarios that illustrate possible operations that the ADF may have to undertake. Scenario exploration offers decision-makers an understanding of how capabilities might be employed. They also allow the exploration of a number of situations for which planners can provide force options to government. In this instance, reflection upon different scenarios may also help in ascertaining the type and number of the IFV that the Army will need. To support that reflection, this section offers a number of possible future events with which the ADF may need to contend.

### Urban conflagration

As a result of a coup, the leaders of Papua New Guinea (PNG) flee Port Moresby for Thursday Island in the Torres Strait, where they establish a government in exile. The PNG Defence Force has been disarmed and confined to barracks or has fled into the hills, along with much of the civilian population. Fires burn across much of the city, and an internal refugee crisis looms. Intelligence reports identify a major foreign state's involvement in orchestrating the coup, and RAAF surveillance aircraft have spotted camouflage-clad mercenaries on the streets. Several foreign transport planes have flown into Port Moresby International Airport, and the Australian Embassy has reported seeing and hearing numerous tracked and wheeled military-style vehicles taking up position across the city. Powerful anti-armour weapons are also in evidence. From Thursday Island, the PNG Government has requested that Australia intervene militarily, restore order and re-establish the authority of the legally elected government.

For Australia, the political collapse of its closest neighbour, its domination by a hostile state, or both, can't be allowed to stand. In this instance, the RAN and RAAF will establish an air and sea blockade of the approaches, but the liberation of Port Moresby and restoration of the PNG Government will require a land force. The Chief of the Defence Force orders the Army to a high state of readiness, while the ADF's logistics staff urgently seek commercial shipping.

As the Battle of Malawi demonstrated in 2019, urban fights are brutal, violent and lethal. Soldiers may need to clear every block, every building and perhaps even every room. Fighting can be savage, particularly when the enemy is unlikely to surrender, which is the case with traitors or foreign fighters. To restore the PNG leadership, the Australian Army will need an armoured force to fight into the city and clear it of hostile elements while also establishing camps to aid the displaced population. A high-mobility and well-protected force will be necessary if Australia is to secure its regional national interests.

### Controlling the ocean

With the arrival of long-range precision-strike anti-ship missiles, it's no longer necessary to control the seas from the sea. Instead, batteries of anti-ship missiles positioned on the land can interdict, hinder or prevent the enemy's maritime movements. An adversary fleet will almost certainly approach Australia from the north and will have to navigate straits that will channel the enemy into a land-based maritime killing zone. Well-positioned Australian anti-ship missile batteries will compound the risk and costs that a hostile fleet will face, and may even deter it from making the attempt. The Army's acquisition of the M142 High Mobility Artillery Rocket System (HIMARS) gives the Army this ability.

However, HIMARS will need to be defended from the enemy's countermeasures. This means that the Army will also need to deploy a combined arms team to secure the surrounding area from both land and air attack. Such a force will require ground-based air defence systems, an armour team of tanks and IFVs and a communications network to link into the joint force, a task that could be performed by the IFV's communications systems, as well as logistics and other elements. The Army will have the ability to deploy a number of missile nodes, each requiring a covering force for its protection.

## Back to the peninsula

Climate change has decimated the agricultural output of North Korea, and the international aid community is unable to provide relief due to the global shortage of grain. Hunger stalks the North Korean landscape. In an attempt to preserve his regime and shift the blame for starvation elsewhere, the North's Supreme Leader launches a surprise attack against the South. The US responds to South Korea's call for assistance, and troops are quickly on their way. Additionally, the US President speaks to the leaders of democratic nations and requests their assistance. The Australian Prime Minister promises ships and aircraft as soon as they can be made ready, with a ground combat force to follow.

In a discretionary contribution, Australia agrees to send an armoured brigade to Korea. However, due to the limited availability of sea transport, the Australian movement to theatre will be done in stages and largely by hired contract shipping. Consolidation will occur in Japan before movement across the Korean Strait and into combat. Further delaying the land force's departure is the need to buy war stocks of ammunition due to the limited holdings Australia keeps in country. The North Korean Army is largely an armoured force and, although many of its vehicles are verging on obsolescence, there are lots of them. The desperation of the North's regime means it will be a hard fight between armoured vehicles and infantry supported by armed drones, artillery and counter air systems. To demonstrate Australia's resolve and place within the international system, Australian forces are in the thick of the fight.

## Global war

Long-simmering disputes between China and the US have boiled over into war. The main front is Taiwan and its surrounding waters. However, from its bases in the South China Sea, China exerts its claim to those waters by force. Chinese air and sea forces strike Vietnamese, Malaysian, Singaporean and Philippine bases. Under the Five Power Defence Arrangements, the governments of Malaysia and Singapore request Australia's military assistance. The RAAF dispatches a wing of Joint Strike Fighters and a squadron of P-8A Poseidon maritime patrol aircraft to Butterworth on the Malay Peninsula, while RAN fleet units sail for Singapore.

The Australian air and sea units at the Butterworth air base and Changi naval base in Singapore require ground protection. To provide that, the Army will need to position forces at each location to work with local forces. The ground force might include HIMARS batteries armed with anti-ship missiles as well as surface-to-air batteries mounting the Norwegian Advanced Surface-to-Air Missile System (NASAMS) anti-aircraft system. To safeguard the batteries and the bases from enemy attack, the deployed force will need both mobility and protection.

## To the four winds

One of the oldest tasks assigned to the Australian Army was the protection of the homeland from raids by small bodies of troops that had escaped detection at sea. In a future conflict, an adversary would create trouble far beyond its cost to itself if it were to lodge a small force on Australian territory with the mission of destroying industrial or military infrastructure.

For an adversary, a raid is an extremely economical way to disrupt Australia's war plans and necessitate a major diversion of forces to the protection of the nation's lengthy coastline. For the expenditure of several parties of soldiers, each numbering well less than a hundred, most of the Australian Army would have to redeploy in small packets around much of Australia. Such forces would need to possess high mobility, sufficient firepower to destroy the enemy, and an ability to coordinate with air, sea and other land forces. The response priority may be for Australia to use air-deployable forces. Additionally, responding forces may be best employed as sensors to locate enemy parties, which can then be destroyed by the calling in of long-range fires or air support.

An adversary could cause even more trouble if it used a disguised merchant ship or fishing trawler to capture a small port, such as Broome in Western Australia or Eden on the New South Wales far south coast. Such a lodgement would be likely to include heavier weapons and vehicles, and to counter it the Army would have to respond with a heavier and larger force. A truly bold adversary could use deception to infiltrate a force into a major city, which would necessitate an urban fight to drive them out.

## Collapsing states

As climate change takes hold, it's expected to increase tension in most states, which will result in increased instability. In such instances, the Australian Government may be asked to provide support. A more disruptive future may see the ADF and other agencies involved in multiple and simultaneous stability missions across the region.

Stability operations will require the deployment of a land force that will have to separate hostile groups, collect weapons and create an environment in which the population feels safe. In addition, Army troops will provide protection for the members of other Australian Government agencies. Such operations are people intensive, but the force posture is a function of the risk environment, which will vary from state to state. One of the lessons of the East Timor intervention was the importance of overawing hostile groups with powerful weapon platforms. The ASLAV provided that function in Dili, and the Army's tanks, CRVs, Bushmasters, Hawkeis and IFVs could do so in the future. Across the discontented world, the warring factions will find it relatively easy to obtain advanced weapons from the international market, while in other countries elements of the local military defect to one or more rival parties, bringing their heavy weapons with them. The forces Australia deploys could range from unarmoured vehicles all the way to heavy armour depending on the requirements of the mission and the threat environment. Therefore, Defence will need a range of capabilities and force options with which to meet government expectations in a climate-disrupted future.

Figure 7: A Rheinmetall Boxer CRV on a live-fire range with an ASLAV



Source: Department of Defence, [online](#).

# Weighing gaps and opportunity costs

No government can afford to provide its military with an infinite amount of money; there are other demands on its largesse. More importantly, good defence policy necessitates the weighing of options and the acceptance of risk in less critical areas in order to provide a military that best meets the needs of the people, but no more. Any unnecessary funding is essentially wasted money that the government could have put to better uses. Therefore, the capability-acquisition process is about funding what's critical even if that requires an acceptance of risk elsewhere. The balance between capabilities acquired and risks accepted is not a fixed one; it varies with the degree of threat and the level of risk with which the government is comfortable. Nor is the offset of risk exclusively a function of weapon acquisition. A government may decide to mitigate threats through diplomacy, economic sanctions or participating in an alliance system.

There's nothing new in accepting risk. The Australian Government has frequently decided to underinvest in certain areas of ADF capability in order to provide more resources to others. Since money is finite, any acquisition, even the IFV acquisition, has the potential to lead to gaps in capability elsewhere. Buying IFVs without the broader elements across defence that allow them to be deployed and sustained in any numbers in our region would necessitate taking on a degree of risk that the government has accepted with past deployments. An assessment of the IFV should, nevertheless, also weigh the acquisition of those broader elements.

## The combined arms system

With the acquisition of the IFVs under LAND 400, the Australian Army will complete the acquisition of the AFV aspect of the combined arms system. As I've noted, the Army fights as a system with which it aims to coordinate the effects of a number of different capabilities, ranging from the individual soldiers and the weapons they carry to the Abrams tanks and the AS9 Huntsmen self-propelled howitzer, plus the effects available from the RAN and RAAF, as well as from the space and cyber domains. The Army's combined arms system, however, still contains a glaring gap that other militaries are exploiting to some effect—armed drones.

At present, the Australian Army operates approximately 1,000 drones ranging in size from the PD-100 Black Hornet Nano, which weighs just 18 grams and fits in the palm of one's hand, up to the 100-kilogram RQ-7B Shadow 2000 with its 16-foot wingspan.<sup>18</sup> However, all of the drones in the Army's existing and planned fleet are designed for surveillance and reconnaissance. None is meant to carry weapons or conduct attacks.

Amid the considerable uncertainties about the war in Ukraine, just as anti-armour missiles have been effective, armed drones have also shown their merit there and in other conflicts. Israel operates several kinds of armed drone, while the US is capable of carrying out kinetic strikes worldwide by drone. The Australian Army, by comparison, not only doesn't operate any armed drones, but it doesn't even have a program to acquire them. It needs one.

There's also no program across the ADF to acquire the means to defeat enemy drones. An ADF program to counter uncrewed aerial vehicles doesn't exist. In effect, the ADF has ceded the tactical airspace to the enemy. Admittedly, the gun on the IFV, with a proximity-fused shell, can shoot down a hostile drone, but that will need to be tested.

Other weapons may also be able to be used against drones. However, this gap is recognition of the relatively low priority that the Army has assigned to ground-based air defence—a deficiency that the NASAMS acquisition under LAND 19 Phase 7B will address in part.

For the Army's combined arms system to become a more effective way of war, it will need funding to address the gap in its armed- and counter-drone technologies.

**Figure 8: Australian Army soldiers assault an objective during a combined arms live-fire activity as part of Exercise Chong Ju 2019 at Puckapunyal Training Area, Victoria**



Source: Department of Defence, [online](#).

## Sea and air lift

The ADF lacks significant sea and air lift with which to deploy the Army. Except for putting ashore a raid, the ADF's force-projection potential is largely restricted to the deployment of ground forces within a theatre of operations in which the threat from hostile forces is minimal. The RAN doesn't have the ability to control the seas against an adversary such as China; nor does the RAAF possess sufficient aircraft to control the air. An adversary would be able to threaten with destruction any overseas movement by the Australian Army, except one protected by a coalition partner or undertaken in the most benign conditions.

The RAN has three amphibious ships that it can use to deploy the Army: the *Canberra*, *Adelaide* and *Choules*. Unfortunately, when the RAN acquired those vessels the acquisition was for a lighter Army. Due to an increase in force-protection requirements, all recent Army vehicle acquisitions weigh more than the vehicles they replace; even trucks have become heavier. It isn't possible to increase the deck capacity of those three ships. Since vehicles weigh more, the only solution is to carry less. The vehicle limit for each of the ships is around 20, depending on vehicle type, giving a maximum lift of about 60 at one time.

Also complicating the movement across water is the ADF's ship-to-shore connector fleet—landing craft. Numbers of these craft are limited and, while each can transport an IFV or a tank, it can carry only one at a time. Any build-up across a beach will, therefore, be a prolonged exercise as landing craft ferry vehicles and stores from the ship to the shore. A quicker transfer would require the ADF to acquire either more or more capable landing craft.

Additional blue-water lift capacity will become available with LAND 8710 Phase 2 (Army Littoral Manoeuvre). This is the Landing Craft Heavy replacement project, and each of the prospective vessels is likely to carry several armoured vehicles. However, the project isn't far enough along to estimate how many each vessel will be able to load or even the number of ships that will eventuate.

A need for a larger lift requirement can be met in several ways. The most likely is for the ADF to obtain additional capacity from hired commercial vessels. Another option is to conduct the lift in a number of stages. Lastly, Australia could seek to access the lift resources of US Transportation Command. But there's no guarantee that the US will be able to meet such a request because it will naturally meet its own needs first.

Australia has employed all three methods in the past; however, each also comes with challenges. The absence of a national fleet means there are very few Australian-flagged ships that the Navy could compulsorily acquire; the most useful are two cargo ships that sail between Victoria and Tasmania, as well as the Spirit of Tasmania ferries. Australia has been able to hire foreign-flagged vessels before, but owners may be reluctant to do so if they believe the operation will put their ships at risk. Additionally, many ships in the Australian market may be unavailable because of political reasons; for example, if the ship flies the flag of a potential adversary or a state that's friendly with or intimidated by the adversary. Therefore, a commercial solution can't be guaranteed.

**Figure 9: Royal Australian Navy LHD landing craft and an Australian Army LCM-8 landing craft carry M1A1 Abrams tanks, M113 APCs and ASLAVs during an amphibious beach assault as part of Exercise Sea Explorer**



Source: Australian Army, [online](#).

To guarantee the availability of shipping, one option would be for Australia to create a national fleet of merchant ships suitable for conversion to military use and at call for government service. The ships would be available for take-up by the government, as was done in the two world wars and the Vietnam War.<sup>19</sup>

Another option would be for the RAN to raise and crew its own fleet of auxiliary cargo ships, the primary function of which would be to deploy the Army and its equipment, vehicles and supplies. Those ships would also be available for humanitarian relief operations.

The last option available to Australia to manage its lift vulnerability would be to reduce the amount of cargo that the ADF needs to move in order to respond to a crisis. By pre-positioning its equipment, vehicles and stores overseas, the Army would reduce its lift requirement because those items would be closer to where they're needed. The RAAF would only have to fly soldiers to where they're wanted. The US follows this practice and places stores overseas in Europe, Diego Garcia in the Indian Ocean and elsewhere. Of course, the pre-positioning option requires the permission of a host country, and that would require the negotiation of a defence agreement. In addition, the ADF would have to maintain a protection detail at the location and tradespeople to maintain the equipment and vehicles in a combat-ready state.

Naturally, the RAAF's lift capacity is more limited than the RAN's. The only aircraft in the RAAF inventory that's capable of lifting an IFV, and other AFVs, is the C-17A Globemaster, of which the Air Force has eight (Figure 10). The weight of these vehicles means that each plane will be able to carry only one at a time. However, if all eight C-17As were available, it does mean Army could have 16 IFVs on the ground anywhere in the region within 48 hours, while the RAAF's fleet of C130s and the Army's CH-47s can bring in additional troops and support elements. This could potentially secure and hold an objective until follow-up forces arrive by sea.

**Figure 10:** A 1st Armoured Regiment M1A1 AIMS-SA Abrams tank positions itself for loading into a C-17A Globemaster III transport aircraft



Source: Department of Defence, [online](#).

## Logistics

Throughout Australia's military history, Australia has underinvested in logistics capability. Instead of raising the full requirement of logistics units and maintaining them in the necessary number, Australia has found it more practical to rely on a senior coalition partner for much of its operational sustainment needs. In effect, Australia contracts with its senior partner for much of its logistics requirements, and pays for what its force uses. For example, during the Vietnam War, the food, fuel and much of the ammunition used by the Australian contingent came from the US supply system. Ideally, the only items Australia shipped to Vietnam were those specific to its non-common equipment. This practice is routine and is followed by many countries, usually with great success.

However, problems develop when there's no senior partner available to act as the source of supply. That was the case in the 1999 intervention in East Timor, where adequate supply was only narrowly met by overworking the logistics troops. In East Timor, Australia was the senior partner. Had combat occurred, creating a greater need for ammunition and medical services, the logistics system would almost certainly have collapsed.

Within its numbers, the Australian Army is able to staff the combat arms to the level it does only because it maintains insufficient logistics units and keeps the ones it has on reduced establishments. Each of the regular combat brigades has a Combat Service Support Battalion (CSSB). Each CSSB contains a workshop, an ordnance element, a transport organisation and other support trades. However, the CSSB's establishment isn't large enough for it to do its job. At best, it can support a battalion group, not the whole brigade. In order to support a brigade-sized deployment, the CSSB needs supplementation, most likely by cannibalising the CSSBs of the other brigades until reservists can be made ready. The trade-off is that, by underinvesting in logistics, the Army is able to maintain a larger combat force, and the ADF accepts the risk because of the senior coalition partner's willingness to support Australian forces. But, as mentioned above, our strategic environment seems to be creating a need to be more self-reliant, so those gaps are becoming more important.

It's well known that the IFVs under consideration are complex machines that may increase the burden on the logistics system in ways that the Army hasn't experienced before. The IFVs will require fuel and ammunition, as well as food, water and medical supplies for the soldiers, as has been the case for some time. The additional requirement is in the area of intellectual property, particularly the proprietary devices and software over which the manufacturer retains ownership. Some of those devices are contained in sealed boxes that the Army's mechanics won't be allowed to open. If one breaks, the solution is to swap it for a new one, assuming that a new one's available in the supply chain. It may also be necessary that some maintenance be provided by the manufacturer, as is the case for other ADF platforms. Additionally, contractor support may need to follow the Army on operations in order to facilitate the repair of proprietary items in the field—a common practice by other militaries.

Perhaps of greater concern for the IFV purchase is the source of their ammunition. None of the types of their cannon ammunition are made in Australia and neither, currently, is the Spike missile. That the ADF will have to import the munitions that the vehicles require isn't unusual for the ADF; it's the case for most of the ammunition used across all three services. It's a question of inventory management, as well as one of the speed and reliability of supply chains during crisis and conflict. What the government needs to accept is that waiting until an operational deployment to purchase munitions is likely to be leaving that too late, as other countries will be in the market. If the government wants surety on whether or not the vehicles have the ammunition they need, the only solution would be to support a sovereign munition manufacturing and assembly industry.

As I've discussed, the provision of adequate lift for the IFVs is also of concern. Lift is an issue that arises with any new vehicle purchase. Under LAND 907 Phase 1 (the tank purchase), for example, the Army included within the acquisition process additional lift assets to facilitate the movement of those vehicles on land, and Defence provided funds to modify the RAN's landing craft to enable them to carry tanks. Tank lift, therefore, became less problematic because it was included as part of the acquisition plan. The same approach could be applied to the IFVs.

For the ADF to invigorate the Army's logistics capability, Defence would have to invest additional money to raise the necessary positions and develop an industry expansion plan. Without that, deployments, as is the case at present, assume high levels of support from our US ally. However, if such a shift in priorities were to come at the expense of the combat arms, the result would be a smaller fighting force or a larger defence budget. The acquisition of the IFV won't materially address this longstanding practice or complicate the existing logistics requirements. However, the number of IFVs acquired will have an effect. If the number acquired is the up to 450 sought, then the logistics system will continue as is. If fewer vehicles are authorised, some money could be available with which to increase the number of logistics and other support personnel required to operate and sustain them in conflict.

Figure 11: A MAN HX77 heavy utility and logistics truck



Source: Department of Defence, [online](#).

## Operating in the region

Another issue to consider when deciding on the IFVs is their suitability for service in Southeast Asia and the Pacific. There's nothing new in those concerns, as they've been raised in the past, notably when the Army was developing LAND 907 Phase 2 (the tank upgrade). As the authors of a paper explained then, the concern is unfounded.<sup>20</sup> The fear is that these vehicles would be destructive to the environment—natural and man-made—and be unable to move across soft ground or in a wet jungle. Such fears aren't borne out by experience. In World War II, the Australian Army operated the Matilda tank in combat in New Guinea, Borneo and Bougainville, where they proved instrumental in reducing Japanese positions. Unlike lighter vehicles, Australian tanks were also able to push through the jungle, allowing the infantry to penetrate Japanese positions, and in doing so demonstrate that power and mass can serve as a tactical offset to weight.

Figure 12: A Centurion tank and a M113 APC providing armoured support in Vietnam



Source: Australian War Memorial, [online](#).

Admittedly, the IFVs are heavy, but weight alone is a poor indicator of how an armoured vehicle will perform on unsealed roads, wet ground or steep slopes. The more important metric is what military professionals call ‘mean maximal pressure’ or what civilians know better as ground pressure, and the ground pressure of the average modern IFV is less than that of a family car. Even the 70-tonne Abrams tank has a ground pressure that’s less than that of most civilian vehicles. In fact, the ground pressure of the average human foot is only half that of a tank despite the tank’s vastly greater bulk, and the ground pressure of a human on a bicycle is higher.

Moreover, it needs to be asked whether concerns about moving through the jungle are relevant at all. The population of regional states tends to be concentrated on the coast, in cities or in rural areas where cleared agricultural land has replaced jungle. It’s likely that, if the Australian Army were to intervene in such areas, much of the fighting could take place in urban settings. In 2019, the Philippine military had to fight Islamic militants for

control of the city of Marawi. In the process of driving the militants from their positions, the Philippine Army had to reduce parts of the city to rubble. In an urban fight, heavily armoured and powerful armed fighting vehicles are a necessity, both for tactical success and to keep casualties low.

Therefore, the size and weight of the IFV isn't prohibitive for operations throughout Australia's area of strategic interest, assuming their transportation to the area of operations can be managed. Once in theatre, the vehicles should be able to carry out their mission without undue difficulties.

## Number of IFVs required

In its determination of the preferred vehicle—between the Rheinmetall Lynx and the Hanwha Redback—the government will also need to decide upon the number of units that the ADF will acquire. There are two primary factors that inform that decision:

- what the government expects the Army to do
- how the Army is organised in preparation for war.

Because it's a matter of classified policy, very little can be said here on what the government expects the Army to do, other than to note that the 2020 DSU recognised the worsening of Australia's threat environment. The scenarios presented in this report outline a number of possible missions that the government will require the ADF to perform, ranging from peacekeeping to peace stabilisation to high-intensity war.

There's some guidance on how to answer the second question. Since the adoption of Plan Beersheba in 2011, the Army has aimed to field units in numbers that are divisible by three.<sup>21</sup> In the military, this is known as 'the rule of threes'.<sup>22</sup> A rule of three relates to the Army's force readiness cycle that consists of three phases. At any one time, a unit can be:

1. preparing for an operation
2. serving on an operation
3. reconstituting after serving on an operation.

Of course, the rule of three pertains mainly to combat units. Many of the logistics units exist in ones or twos or are hollowed out in order to produce three.

Under LAND 400 Phase 3, the Army is seeking up to 450 IFVs, which will allow it to give IFVs to three mechanised infantry battalion: one each for the 3rd, 7th and 9th brigades. That number also includes the requirements for the schools, as well as a rotation fleet to offset a unit's deep-maintenance requirements. It also includes a small percentage of spares in expectation of losses.

If the government authorises a purchase of fewer than 450, the Army will probably not be able to equip three battalions without some sort of compromise. There are a number of options.

The Army could still raise three battalions, but each would be under strength, which would reduce their combat capability. Instead, it could field the mechanised infantry battalions at full strength but employ a different mobility solution for some of the troops who wouldn't be carried in IFVs and would thus be exposed to greater combat risk. This solution might not be desirable because it would create a unit that was internally incoherent, which would complicate its training and support.

Another option would be to revise the Army's planned way to fight. Without three battalions, the combined arms system would need to be revised so that the Army fought in a different manner.

Each of these options comes with some degree of risk of more casualties, which would need to be explored before any one is implemented. The heightened risk is because fewer troops would operate with the superior protection afforded by IFVs.

Figure 13: The Hanwha Defense Australia Redback IFV



Source: EOS Australia, [online](#).

## Shaping the environment

Government direction, as outlined in the 2020 DSU, sets as one of the ADF's three objectives the responsibility to shape the strategic environment. The report observes that 'Australia must be an active and assertive advocate for stability, security and sovereignty in our immediate region.'<sup>23</sup> The Army contributes to that objective by maintaining a large international engagement program with regional partners. That includes the conduct of training exercises with partner land forces and the opening of the Army's educational institutions to students from foreign countries.

Since maintaining and building relationships with regional militaries is a central responsibility for the ADF, it's reasonable to assess how the proposed IFVs will fit into that role. The immediate answer is that they can participate, but only with some remediation before the exercise and with understanding on the part of the host nation, since the Lynx and Redback will contain sensitive sensor and communication devices to which foreign personnel can't be allowed access. That risk would be managed by either removing the sensitive devices or by practising what the Army calls 'positive control', which means controlling the environment to which someone has access. Either option would require some inconvenience and would include the removal and restoration of the affected devices. However, the Army already does this for other equipment, so the inconvenience isn't substantial. A more practical option would be to employ the non-IFV-equipped units on those missions. That would deny those who serve in the mechanised infantry the opportunity to partner with foreign troops, but it would be an effective compromise and should allow the Army to sustain and grow its foreign engagement opportunities. Thus, while it may prove difficult to employ the IFVs on a partnering mission, the Army does have other options with which to meet its obligations.

## Training

The acquisition of a new IFV capability will certainly complicate the Army's training regime, at least initially. Both of the offered vehicles are complex, advanced platforms that will require intelligent, motivated and highly trained crews in order to operate with effect. Nor is this a new factor for military organisations. For example, as the RAAF replaces its Hornet fleet with the Joint Strike Fighter, accompanying the generational leap in capability is a commensurate increase in complexity, which represents an additional training burden.

The Army will have much work to do to update its training regime to make the IFV platform into an effective capability. Some of the work has already been done as a result of the LAND 400 Phase 2 CRV acquisition. The Army has built or is building CRV simulation training centres for each of its combat brigades. Those facilities are designed to be IFV capable as well, and include space for the infantry to engage in simulation training with the vehicles. Funding has been included in Phase 3 to fund training infrastructure improvements. How much will need to change isn't possible to assess until a decision is made, but the Army has adapted to new and more technical equipment in the past, for example when the artillery transitioned from the Hamel gun to the larger M777 howitzer. The transition to the IFV from the M113 may be a larger jump in functionality and complexity, but one that's neither unexpected nor unusual for a contemporary military.

# Conclusion

LAND 400 Phase 3 is a big decision. The vehicle chosen and the number purchased will affect the combat capability of the Army for a generation. A more powerful platform will increase the range of operations the Army can undertake, while a less powerful one will narrow the options and increase the risk. But the decision is about more than which vehicle to choose. It's also about defining the combined arms team that will fight as part of an integrated joint force, as well as meeting the logistics requirements that will enable the ADF to achieve the objectives set for it by the Australian Government.

It's hard for a defence force to predict how it will fight in the future, because a nation never knows the kind of war it will face. Wars come in a multitude of forms with many levels of intensity and danger, ranging from the risk of nuclear annihilation to wars such as those fought in Vietnam, Afghanistan and Iraq. What's consistent is that no one ever gets the war they want or expect. Those who believe that Australia will never need to fight a major war against a peer competitor are likely to be wrong; no one would want a resumption of the Korean War, but the potential for the conflict's resumption can't be ignored. The same could be said for Taiwan. Those who believe that Australia will never fight again in the Middle East may be similarly mistaken.

It's a commonly held position that a war in the islands to Australia's north or on the Pacific islands won't be terribly intense and therefore wouldn't require a powerful, well-protected armoured vehicle. That, too, is likely a poor judgement. The intense battle for Marawi in the Philippines demonstrates the folly of such thinking. Powerful weapons continue to proliferate, fanaticism is present in many societies, and urbanisation increases throughout the globe. Groups that don't share Australia's interests are finding it easier to obtain lethal weapon systems. Rapidly improving drone technology is creating new battlefield dilemmas, from which Australia won't be exempt, and providing greater rationale for battlefield protection as well as necessitating investment in tactical anti-drone systems. Each of those trends is evident in Australia's areas of regional interest, which means that regional wars will also still require heavy weapons to take the fight to the enemy while providing better protection for Australia's soldiers. The prospect of a war involving China is terrifying, but can't be discounted.

As Australia looks northward, there's an abundance of water. Interspersed among the water are thousands of islands. It's those bits of land that matter most and are ultimately fought over. While it is impossible to accurately predict the type of wars Australia will fight in the future, there is one common element that underpins all war; the next war will be about people and the land they live on. As military theorists know, war always comes down to the human level, which necessitates a nation's possession of a robust and capable land force. If Australia wants to be secure, it will require an Army that's fit for its national ambitions. How LAND 400 Phase 3 fits into that ambition is for the government to decide.

# Notes

- 1 Department of Defence (DoD), 'Land combat vehicle system (infantry fighting vehicle)', Australian Government, no date, [online](#).
- 2 Australian Defence Force, *Capability life cycle manual*, version 2.1, Australian Government, 2020, [online](#).
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# Acronyms and abbreviations

ADF	Australian Defence Force
AFV	armoured fighting vehicle
APC	armoured personnel carrier
APS	active protection system
ASLAV	Australian light armoured vehicle
CRV	combat reconnaissance vehicle
CSSB	Combat Service Support Battalion
DSU	Defence Strategic Update, 2020
FIC	fundamental input to capability
HIMARS	High Mobility Artillery Rocket System
IFV	infantry fighting vehicle
NASAMS	Norwegian Advanced Surface-to-Air Missile System
NATO	North Atlantic Treaty Organization
PNG	Papua New Guinea
RAAF	Royal Australian Air Force
RAN	Royal Australian Navy

# WHAT'S YOUR STRATEGY?

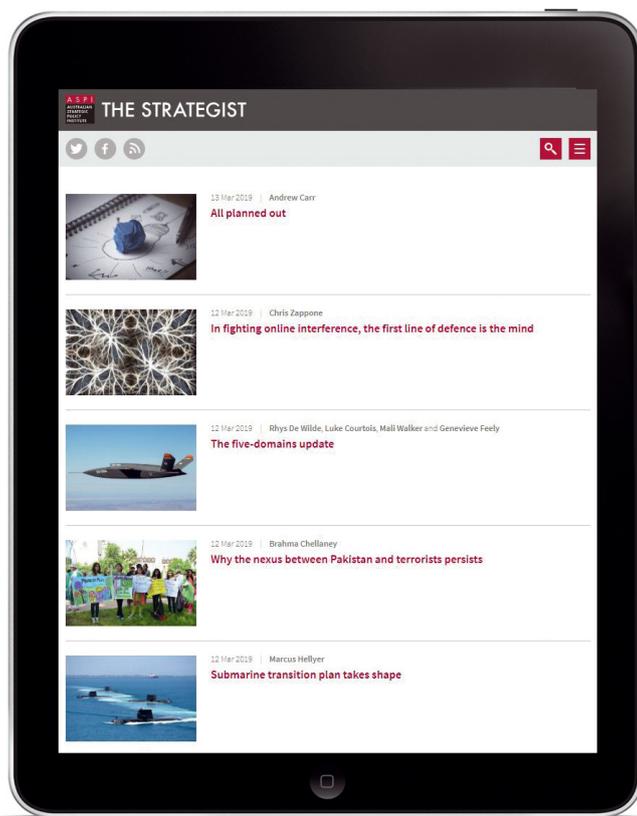


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