TRANSLATING UKRAINE LESSONS FOR THE PACIFIC THEATRE

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Cover image: United States Marine Corps, Australian Army and Singapore Armed Forces artillery batteries fire their respective High Mobility Artillery Rocket Systems (HIMARS) during a live-fire training activity at Shoalwater Bay training area during Exercise Talisman Sabre 2025. (Source: Defence Image Gallery)

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Executive Summary

The ongoing conflict in Ukraine, originating with the Russian invasion in 2014 and escalating significantly following the full-scale invasion in February 2022, has exerted a profound influence on global security dynamics as well as on the future direction of war. While the likelihood of achieving a peaceful resolution by 2025 remains remote, the war has offered invaluable insights into contemporary warfare, specifically in the areas of advanced technological applications, strategies for deterrence, and the mobilisation of national resources.

Countries such as Japan, Taiwan and the United States have demonstrated a proactive approach by integrating lessons derived from Ukraine into their security policies and procurement strategies. In contrast, Australia's National Defence Strategy (NDS) of 2024[1] and its implementation has demonstrated insufficient adaptation to these lessons, particularly in the areas of uncrewed systems, counter-UAV technologies and long-range strike.

This paper posits that most conceivable military scenarios in the Pacific involving Australia and its allies could benefit from the insights obtained from Ukraine. However, at the same time, these lessons must be contextualised given the distinct political, geographic and strategic characteristics of the Pacific theatre.

The document explores key trends in the Ukraine conflict, highlighting the unprecedented visibility provided by open-source sensors, social media platforms, and media access to battlefield operations. While this visibility has contributed to a broader understanding of the conflict's trajectory and the employment of innovative technologies, the inherent 'fog of war' continues to obscure numerous aspects. It is anticipated that certain elements of this conflict may remain unknown or shrouded in ambiguity for years to come.

The paper concludes by presenting recommendations aimed at translating the lessons learned from Ukraine into strategies tailored to the Pacific context. By identifying the specific factors that differentiate the Pacific theatre from eastern Europe, it is argued that military institutions, including the Australian Defence Force (ADF), can more effectively adapt these lessons to enhance deterrence capabilities and the operational effectiveness of military forces amid escalating Chinese military activities—along with those of its Russian and North Korean partners—within the Pacific region.

This examination of Ukraine lessons within the context of future Pacific military operations should be viewed as an initial step in the process. There are many more lessons from Ukraine to be examined than this paper could cover, although those lessons presented are assessed to be the most relevant at this time. Further research is required to continue eliciting lessons from the Ukraine-Russia conflict, and more analysis is required to ascertain their relevance to individual nations and sub-regions within the Pacific theatre.

Introduction

A terrible tragedy has befallen the people of Ukraine with the brutal Russian invasion of their nation since 2014. And despite the efforts of Europeans, Americans and other nations to support Ukraine and achieve a peace settlement, the prospects for a cessation of the fighting in 2025 remain dim. Despite this, the war in Ukraine has also provided opportunities for governments and military institutions around the world to challenge their notions of modern, advanced technology warfare. It has also informed new or evolved thinking about deterrence, coercion and the integrated, whole of nation mobilisation of resources.

Concurrent with the insights provided by the war in Ukraine, particularly since the full-scale Russian invasion of February 2022, the Chinese Communist Party (CCP) has stepped up its level of military activity and aggression across the Pacific region. While the most obvious manifestation of this has been the significant expansion of large-scale joint exercises around the periphery of Taiwan, Chinese military activity has also increased around Japan, the Philippines and Australia.

Australia's response was encapsulated in the 2024 NDS. Focused on deterring Chinese aggression in Australia's area of interest, the NDS also demonstrated a remarkable lack of learning from the war in Ukraine. By contrast, other nations such as Japan, Taiwan and the United States have demonstrated a greater degree of learning in their security policy documents and in their procurement programs. There are a multitude of different scenarios in the Pacific that might involve a military commitment for Australia and its allies and security partners. Almost every conceivable military contingency faced by Australia can benefit from the lessons of modern war provided by the war in Ukraine. The key challenge is learning the right lessons.

The aim of this paper is to explore the lessons from Ukraine and their applicability to the Pacific theatre for Australia, its security partners and its allies. Lessons from military conflict do not always provide a template for other nations to follow. This is for reasons of geography, political factors and the strategic circumstances of each conflict. But it is possible to translate the insights from the war in Ukraine if one can define the key specific

characteristics in different theatres through which lessons from Ukraine might be filtered.

In addition to examining the lessons from the war in Ukraine, this paper provides a list of factors that differentiate the Pacific theatre from the eastern European frontline situation. It then uses these factors—or translation filters—to ascertain how (and if) lessons from Ukraine might apply to military operations in the Pacific theatre.

Finally, given the insights from Ukraine, and the translation of those lessons for the distinct political, technological, and geographic environment of the Pacific, the paper provides recommendations that might help focus the absorption of lessons from Ukraine into the ADF and other Western military institutions that will operate in the Pacific.

I. Ten Big Lessons from the Ukraine War

As the war in Ukraine has continued, our understanding of trends has evolved. Much of the war has been highly visible to outside observers, due to the proliferation of social media commentators and the use of open-source sensors to follow the actions of Ukraine and Russia. Ukraine has generally allowed the media to visit the battlefield, which has added to the broader understanding of the war, its trajectory, and the application of innovative technologies.

But having enhanced visibility of the war from outside of Ukraine does not mean that the war is fully transparent to observers. As in all wars, there is much that remains hidden by the tempo of operations, the deliberate efforts of both sides to deceive their adversaries, and the age-old challenge of what Clausewitz described as 'the fog of war'. Just as it took decades for the impact of electronic warfare and signals intelligence on Second World War decision-making to be revealed,[2] there will be aspects of this war which will remain shrouded in mystery or entirely unknown for a long time to come.

However, the world and the international security environment is evolving rapidly. Military institutions cannot afford to wait for the end of the war to achieve greater certainty about what lessons should be incorporated into Western force design, strategy, training and other military affairs. Consequently, the assessment of key trends is an ongoing project, and military institutions must learn and adapt with the best knowledge available to them now.

This section of the report proposes 10 lessons which are the most relevant to Western military institutions. While there are sure to be many other insights that can be gleaned from the war, these are the most important for governments and military organisations to respond to now.
These 10 lessons relate to the following:

1. Mass and national mobilisation
2. Cognitive warfare and inter-societal conflict
3. People
4. Meshed commercial-military sensor networks
5. Ubiquitous uncrewed systems
6. Cheaper, accessible precision long-range strike
7. Allies and security partners

8. Rapid and expanding adaptation war
9. Surprise
10. Leadership.

Lesson 1. Mass and National Mobilisation

New approaches to mass collection and analysis of personal information, the wide-scale use of influence operations (including sophisticated algorithms), and the ubiquity of massed, uncrewed systems across the land, sea, air and space domains has resulted in a new era of mass warfare in Ukraine. At the same time, we have seen the simultaneous application of large numbers of conventional forces in high-intensity operations, widespread use of artillery and precision munitions, and large, massed long-range strike conducted by both Russian and Ukrainian forces.

The Ukrainian technology sector and crowdfunding organisations such as Come Back Alive[3] and Brave1[4] have played key roles in mobilising national and societal capacity during war. These kinds of institutions have provided a link between the military and civil society; have helped raise the technological literacy of senior military leaders; and have assisted citizens to understand what is happening on the battlefield. Collaboration between industry, the government and the military has improved, and Ukrainian defence production has increased significantly. Frontline soldiers now even have a direct link to industry to share ideas and lessons.[5]

Mass influence operations have also been part of this environment. While influence activities have been a timeless element of human conflict and competition, their growing sophistication has made them a crucial element of the contemporary operational environment. Algorithms, machine learning and massive datasets can, and do, assist military and government organisations to undertake wide-scale and precisely targeted influence operations.

As a result of innovation during the Ukraine war, military institutions now stand at a crossroads where they need to make difficult choices, and assess opportunity costs, to generate sufficient mass. Considerations include how to achieve an optimal balance between expensive platforms, and cheaper, smaller autonomous systems that will be more adaptable to different missions and more widely available. These new forms of balanced force

structures, which generate mass through crewed systems, autonomous capabilities and influence activities, must be complemented with new 21st century warfighting concepts and strategies.

A final dimension of this new era of mass is people. At least in the near term, it is unlikely that massed military capability will be available using all-volunteer force models favoured by many Western democracies.[6] Ukraine's military has been transformed by the change in balance between professionals and mobilised soldiers. The Ukrainian professional force was severely attrited in the large battles of 2022. Accordingly, a large proportion of Ukrainian (and Russian) military personnel now serving are those who have been mobilised since the beginning of the war.[7]

The Russian military has increased its ability to recruit Russians into the ground forces. It mobilised 300,000 personnel in late 2022 and recruited approximately another 300,000 in 2023. By the start of the 2024 offensives, Russia had increased the number of troops in Ukraine from the previous year by over 100,000. In an April 2025 assessment, US agencies estimated that Russia is able to sustain a recruitment rate of 30,000 new recruits per month and that it recruited almost 440,000 personnel throughout 2024.[8] In this way, it has generated a manpower advantage, and a force generation advantage, over Ukraine. It has then leveraged this advantage to place continued pressure on Ukrainian frontline positions. This constant pressure, and Russia's ability to more readily replace losses than Ukraine, has been the principal reason for Russian incremental gains.

Based on these observations, Western military organisations may need a system of mobilisation to build sufficient mass to deter future conflict and, if it cannot be deterred, to provide a large force for the best chance of winning.[9] Mobilisation must be a national undertaking and will have some continuities with previous eras, such as industrial components and the need for strategic prioritisation and synchronisation. But 21st century mobilisation will involve a trinity of national endeavours: industry, people and ideas. Each is a distinct and important component, and these must be orchestrated to align with societal expectations, national resources and the desired national security objectives of individual nations. Finally, as seen in Ukraine, mobilisation is not just a project to build military capacity. The strategic levers, resources and leadership required for mobilisation can also be used for building national infrastructure, civil defence, societal cohesion and enhanced overall strategic resilience.

Lesson 2. Cognitive Warfare and Inter-societal Conflict

Advanced new technologies have enhanced the lethality of military forces at greater distance. They have also provided the technological means to target and influence various populations in a way that has not previously been possible.

Influence activities undertaken by the Russians have had an impact on the war. Social media, and its attendant influencers and podcasters, had an impact on the congressional debate on American support for the war in 2024 and on the 2024 US elections.[10] The war in Ukraine has also shown that strategic influence is not entirely dominated by authoritarian regimes. In the lead-up to the 24 February invasion of Ukraine, US intelligence agencies were able to use sensitive sources and reporting in efforts to both discover Russian operations and pre-empt them.[11] Once the war began, President Zelenskyy employed social media to ensure his nation received military, economic, intelligence, political and humanitarian aid from the West.

Generative AI is having an increasing impact on different aspects of the war in Ukraine.[12] Deepfake technologies are being used to generate fake news and fake video of credible spokespersons, with the aim of degrading trust in politicians and government-provided information about the war. At the same time, deepfakes can cause a 'liar's dividend',[13] where those confronted with evidence of corruption and abuses of power can sow uncertainty and avoid accountability by saying, 'It's fake'.[14]

Mass, precision-strike, autonomous systems and meshed commercial-military sensor networks are critical components in modern war. But the capacity to generate strategic influence and shape decision-making at all levels is also crucial to a nation's warfighting capabilities. This phenomenon is increasingly being described as 'cognitive warfare', which includes aspects of neuroscience, group dynamics and social media manipulation. Recently, the NATO Allied Command Transformation organisation developed a cognitive warfare concept and defined cognitive warfare as 'the activities conducted in synchronization with other instruments of power, to affect attitudes and behaviours by influencing, protecting, and/or disrupting individual and group cognitions to gain an advantage'.[15]

Both Russia and Ukraine have invested in strategic influence during the war. A key insight is that nations must be capable of concurrently winning both their wars and the narrative of their wars.

The war in Ukraine has also shown that the internet and social media have provided the foundations for expanded direct connectivity between adversary populations. The 'societal surface areas' of contact are expanded by modern technology.[16] The greater the contact between societal surface areas, and the larger the shortfalls in national and societal resilience, the larger the targetable vulnerabilities available to those practising cognitive warfare.[17]

Lesson 3. People

The previous lesson explored people in the context of mobilisation. This is the quantitative aspect of people in war. This lesson explores the qualitative element, particularly in the recruiting, development and employment of military personnel.

After the Russian full-scale invasion of February 2022, one of the early distinctions that appeared was the qualitative difference between Ukrainian and Russian soldiers. As a report by *European Security* and *Defence* notes, 'the Russian command erred during the planning stage by underestimating the enemy, overestimating their own strength, and relying on unverified information'.[18] This qualitative issue with Russian planning and training has persisted through to 2025, with a May 2025 assessment by the Institute for the Study of War describing how:

> poor training of recruits is limiting Russia's ability to conduct any other operations aside from 'meat' assaults (the repeated waves of mass attacks, with high casualties, designed to overwhelm defenders) and that Russia is suffering high losses because the Russian military command does not have sufficient time to properly train recruits.[19]

There is also a significant variation in quality among Russian ground troops. As a Chatham House report notes:

> Russia now has a disparate force. This includes the 1st and 2nd Army Corps—previously part of the Russian proxy Luhansk and Donetsk People's Republics … There are also BARS reserve units, volunteer battalions, Storm Z and V units made up of convicts, and varied paramilitary units, some of which operate under the aegis of the GRU, Russia's military intelligence agency.

This disparity among troops has resulted in a lack of standardisation in doctrine and organisation, and has also necessitated different tactics, including 'meat tactics' for the most poorly trained troops.[20]

Force quality issues have not been restricted to Russia. Ukraine has struggled to recruit sufficient numbers of personnel since the initial surge of volunteers in 2022. This has resulted in only about 12 per cent of new recruits now being volunteers, as well as a growing average age of soldiers in the Ukrainian ground forces (now around 43 years old).[21] Shortfalls in recruiting have also led to a pressure to get those who are being trained to the front line more quickly, decreasing the quality of recruit and specialist training by shortened training times. Examples of training challenges include the chaotic formation and training of brigades in the lead-up to the 2023 Ukrainian counteroffensive, and the more recent training and leadership challenges associated with the 152nd and 155th brigades.[22] Inadequate training and force generation of Ukrainian brigades is one of the reasons for the failure of Ukraine's 2023 counteroffensive.[23] To compound things, high personnel losses and desertion have presented challenges to Ukraine's ability to sustain operations.[24]

Notwithstanding these challenges, Ukrainian personnel have generally proved to be of a higher average quality and to have stronger motivations due to the existential threat to their country, and they have demonstrated more consistent innovation on the battlefield. Even when the Russian troops have shown initiative and adaptive capacity, Ukrainian forces have generally been able to learn and adapt to counter Russian innovation.

Ultimately, this disparity in the quality of personnel between Russia and Ukraine has manifested in the difficulties that the much larger Russian force has faced in making advances since the beginning of 2024. As Michael Kofman has noted:

> the Russian military struggled to attain a decisive advantage in offensive actions. Fundamental problems in force quality persisted, with offensives largely relegated to small scale unit action, or costly mechanized assaults that failed to achieve breakthroughs.[25]

Ukraine has demonstrated that the quality of personnel matters. But, as Russia has demonstrated, if a force can generate a sufficient disparity in quantity, these qualitative deficits can be reduced or erased. In the case

of Russia, according to Joris Van Bladel, this mass is coupled with a military culture that embraces and rewards loss, sacrifice and suffering.[26] This combination of culture and quantity can produce a powerful military capability that can overwhelm a higher quality but smaller organisation if focused on the right objectives.[27]

Lesson 4. Meshed Commercial-Military Sensor Networks

Commercial sensing and communications networks such as Starlink have an important influence on the conduct of the war in Ukraine. A range of commercial terrestrial, space, aerial and maritime sensors have been used to provide near real-time data to inform military operations. Commercial communications networks have been employed to carry and fuse sensor data used by analysts and commanders. While the array of sensors used in Ukraine has been expanded with the wide-scale use of drones, commercial sensors such as the US National Aeronautics and Space Administration (NASA) Fire Information and Resource Management System,[28] freely available online, have also played a role. Additionally, acoustic and seismic sensors,[29] as well as commercial synthetic aperture radar (SAR) satellite sensors,[30] have been integrated into the intelligence generated by existing military sensors and analytical processes to improve situational awareness.

The commercial ownership of essential communications constellations like Starlink also has downsides for military organisations. Elon Musk's actions to turn off Starlink to thwart a 2022 Ukrainian attack on Russian forces in Crimea is an example of the kinds of challenges posed by the meshing of commercial and military sensor and communications networks. These challenges need to be resolved for future military conflicts.[31]

The role of space-based sensors and communications is central to this new meshing of commercial and military sensor networks. Satellites that undertake multispectral capacity—commercial and government owned—have an essential function in providing awareness to both sides. Russia owns its own constellation of satellites and potentially receives satellite-gathered information from China. Ukraine, on the other hand, owns almost no satellites and is reliant on the United States and European government and commercial satellites for its needs.

Satellites owned by commercial entities have provided militarily useful information, including contributing to the proliferation of cheaper precision deep-strike capabilities discussed below. They have also furnished information on targeting of protected locations and civilians, as well as the commission of war crimes, by Russia.[32] This is an essential function to ensure that both combatants and national leaders are held accountable for the actions of their forces. It provides a foundation for strategic influence operations and countering adversary misinformation about what they are doing and what their objectives are.

Artificial intelligence has played an increasingly important role in this so-called 'signature battle'.[33] As Kateryna Bondar has described in a report on this topic, work on AI for situational awareness and for drones before 2022 provided the foundations for Ukraine to subsequently apply AI in an expanding number of functions. These include open-source intelligence, enhancing situational awareness and streamlining command and control.[34]

The better capacity to detect people, equipment and units by both sides now sees a continuous signature battle.[35] There is an ever-shortening time between detection and destruction of targets on the battlefield, resulting in a near stasis on the ground on the Ukrainian eastern front. Defensive operations are now much easier to undertake than offensive operations. There is now a pressing need for conceptual, technological and organisational innovations if military forces are to conduct offensive operations at reasonable cost in the future.

Lesson 5. Ubiquitous Uncrewed Systems

Even though remotely operated systems were developed and employed during the Second World War,[36] and there have been many developments in newer systems since the wars spawned by 9/11, the past three years have seen the most intense, large-scale development and use of uncrewed systems in human history.[37]

Key developments include the proliferation of drones into the maritime and land[38] domains, the development of fibre-optic controlled drones which are hard to detect or jam, the development of drone versus drone combat, the recently developed capability for large drones to piggyback smaller reconnaissance and strike drones, and the development of a 'Ukrainian

drone wall'.[39] More broadly, such proliferation has seen Ukraine, Russia and other military organisations deploy massed precision drone capabilities on the battlefield and beyond. This transformation of the battlefield by drones has resulted in a situation described as follows by Michael Horowitz:

> The current age of warfare is collapsing the binary between mass and precision, scale and sophistication. Call it the age of 'precise mass'. Militaries find themselves in a new era in which more and more actors can muster uncrewed systems and missiles and gain access to inexpensive satellites and cutting-edge commercially available technology.[40]

Drone adaptation, which Oleksandra Molloy describes as 'integral to the survival' of the Ukrainian Armed Forces over the past three and a half years,[41] has been accompanied by developments in electronic warfare (EW). EW has been crucial to detecting, jamming or spoofing enemy drones, as well as degrading their navigation systems and discovering drone operations centres.[42] In many respects, drones and EW exist on a co-evolutionary pathway. Despite the impacts of EW-resistant fibre-optic drones (which remain a small proportion of overall drones used), this link in the adaptation of drones and EW is likely to remain a feature of the war in Ukraine and beyond.[43] The saturation of drones and EW in the tactical environment is not only difficult to defeat but it is likely to further transform the character of war.

Another recent development in the Russo-Ukrainian war has been that counter autonomy systems have progressed significantly. Initiatives in Ukraine include drone interceptors[44] and AI-controlled robotic machine guns[45] to shoot down battlefield uncrewed systems as well as the long-range Shahed drones. These Ukrainian efforts have been complemented by a range of American, European and other efforts to develop cheaper ways to bring down enemy drones.[46]

Lesson 6. Cheaper, Accessible Precision Long-Range Strike

Long-range strike has been a crucial development for the Ukrainian Armed Forces since 2022. At the start of 2022, Ukraine possessed almost no capacity to hit Russian strategic targets. Since then, they have developed an approach to long-range strike that has incorporated a high-end/low-end

mix of weapons and a combination of foreign and indigenous solutions. Further, the Ukrainian long-range strike capability has been assembled from a combination of ground-based rocket launchers, armed drones, cruise missiles, and uncrewed maritime strike vessels. This long-range strike capability is not just a military capability, however. It is a political necessity to militarily degrade an adversary and demonstrate success to allies and partners providing support.

Ukrainian intelligence organisations and deep-strike capabilities have become an increasingly integrated and capable strategic system as the war has progressed. While there have been many examples which could be highlighted, the Ukrainian strikes on Russian bomber bases on 1 June 2025 is a case study in the creativity and sophistication of the Ukrainian deep-strike complex. This makes the intelligence and deep-strike competition one of the more dynamic elements of the war, and one to be studied by countries seeking a sovereign deterrent and long-range strike capability.

The development of a low-cost long-range strike capability by Ukraine[47] has been underpinned by the technological influences of uncrewed weapons availability and cost, and meshed military and commercial sensor networks explored above. Ukraine is now able to conduct strikes, employing integrated planning from a range of military and national intelligence organisations, at ranges out to 2,000 kilometres.[48] Future adversaries will have access to a wider variety of long-range systems.

The cheaper cost and wider availability of long-range strike capacity must drive new thinking in military organisations about defending bases and critical infrastructure that were once assumed to be safe. The growing availability of cheap, precise long-range weapons also means that the balance of long-range strike and close combat capabilities will need to be reconsidered in military force structures. While long-range strike capabilities are important components of the arsenals of military institutions, they are not a silver bullet. Such capabilities must be integrated with close combat, information operations and, importantly, the contributions of allies.

Lesson 7. Allies and Security Partners: Sharing the Load

The importance of alliances and security partnerships has been reinforced by the war. Ukraine has been able to sustain its war effort, its economy

and its international diplomacy partly through the security relationship that was established with NATO in 1997 and has been enhanced since then. Although there has been some advocacy about Ukraine joining NATO, such as the statement from the 2023 Vilnius summit,[49] this is unlikely to occur in the short term. Ukraine has, however, signed multiple bilateral security agreements with European nations including Britain,[50] the EU, and over 20 other nations,[51] including the United States.[52]

Notwithstanding that it is not (yet) a member of the NATO alliance, Ukraine is adopting NATO equipment and processes (such as the joint targeting process). This adoption of common doctrine, processes and training, also known as 'interoperability', which is developed through peacetime exercises and individual training courses, as well as through wartime strategy development and training assistance, is an important element of NATO support to Ukraine.[53] It will also play a crucial role in building a strategically cohesive coalition to deter Chinese aggression or defeat any future blockade of, strike against or invasion of Taiwan.

Overall, NATO support has been a crucial element in Ukraine's overall strategy. A moribund alliance by the early 2020s, it has been transformed with new purpose in the wake of the Russian full-scale invasion in February 2022. NATO's July 2022 strategic concept reinforced both the contemporary and future roles of NATO, as well as its focus on supporting Ukraine to defeat Russia.[54] The 2023 NATO summit reinforced the alliance's ongoing support for Ukraine; its official communiqué noted that NATO remains:

> steadfast in our commitment to further step up political and practical support to Ukraine as it continues to defend its independence, sovereignty, and territorial integrity within its internationally recognized borders, and will continue our support for as long as it takes.[55]

The importance of alliances, and Ukraine's external partnerships, extend beyond military, intelligence and training matters. The coordination of economic sanctions on Russia since the beginning of the war is an important element of Ukraine's foreign relationships. There is a complex array of different sanctions that have been applied to Russia, Russian private and state-owned enterprises and Russian nationals since February 2022. Sanctions have incorporated restrictions on the movement of Russian goods and resources, as well as the sale of goods and resources to Russia. They have also included restrictions on movement of capital, restrictions on

provision of Russian services and on trading the assets of individuals and companies, and travel bans.[56]

The impact of these economic sanctions has generated considerable debate in academia, among think tanks and in the broader commentary on the war. Most experts find that economic sanctions imposed on Russia have had an impact on the growth of Russia's economy and its ability to generate war material. However, most examinations of the sanctions have also found that Russia has adroitly used its ongoing energy exports to pivot towards alternative economic partners, and has capitalised on the evolution of a war economy to mitigate the worst impacts of Western economic sanctions.[57] While economic sanctions have provided a useful tool in countering Russian aggression, they are just part of a broader strategy in defending Ukraine and resisting Russian expansionist tendencies in eastern Europe.

Lesson 8. Rapid and Expanding Adaptation War

Adaptation is a process of learning and change that contributes to building military advantage continuously while constantly negating enemy advantage. The possession of a systemic, well-led culture of adaptation is something that can give a nation and its military institutions greater fighting power in peace and war. Both Ukraine and Russia have learned and adapted during the war. Their forces have engaged in tactical learning (learning that helps to win battles) as well as strategic learning and adaptation (learning that supports improving a nation's ability to win wars). Both systems are necessary, and they must be linked to reinforce each other. Both nations have also learned to learn better in the past three years. Where they are not innovative, they are fast followers.

This adaptation battle[58] has been joined at multiple levels in the military institutions of Ukraine and Russia. This adaptation is not a singular process that takes place at one level of an institution. In any military institution, there will be multiple instances of adaptation occurring at any one time, and these will generally be occurring in different geographic areas (depending on threat) as well as at different levels within the hierarchical construct of a military force. Adaptation, in technology and tactics, is now moving at a speed that is probably incomprehensible to most Western politicians and defence bureaucrats.

A case study of Ukrainian and Russian adaptation has been in the use of drones. Not only are technology and tactics evolving quickly; so too are organisational constructs to support this capability. In brigades, there is a shift from drone companies to drone battalions. The Ukrainian Unmanned Systems Force is a significant organisational adaptation. This independent service now provides what can be best described as the central nervous system for drone operations, doctrine, learning, advocacy and organisations. Its authorities cover the battlefield operations, operational command and control, training, doctrine and lessons, as well as strategic military, industry and government affairs.

However, adaptation is more than the application of new and improved technology. No new technology can have impact without a variety of human interventions. These interventions generally fall into one or more of three types: new ideas, new (and evolved) organisations, and training. Institutional adaptation processes also need to close the interval between new technologies and new modes of employment. There is almost always a time lag in the period between introduction of new technologies and the introduction of the new doctrines and institutions that best exploit it.

Beyond drones, there are many other case studies of adaptation during the war which highlight the non-technological aspects of adaptation, as shown below.

Ukraine adaptations	Russia adaptation
Transition to NATO-style military and doctrine. Begun 1997, supercharged 2022. National integrated air, missile and drone defence. Development of strategic strike capability. Mobilisation legislation 2024. Societal mobilisation—informal adaptation. Increased use of AI in strategic agencies. Use of economic warfare since late 2023. Expansion of defence research and production.	Mobilising national industry. Evolution of force generation and recruitment methods. More unified command and control. War economy and sanctions evasion. Economic warfare against Ukraine since 2022. Weapons collaboration with North Korea and Iran. Rapid industrialisation of lessons copied from Ukraine.

Non-technological adaptations by Ukraine and Russia

Finally, the Ukraine war adaptation battle has metastasised into a global adaptation war. Russia now fosters an active learning community with Iran, North Korea and China. This 'learning and adaptation bloc' sees its participants sharing battlefield lessons and collaborating in technology development and sanctions evasion, while also sharing and collaborating on methods of coercion, subversion, misinformation and, of course, learning and adapting.[59] The 2025 US Intelligence Community Annual Threat Assessment described this situation as follows:

> Bilateral relationships, largely in security and defense fields, have strengthened their individual and collective capabilities to threaten and harm the United States, as well as improved their resilience against U.S. and Western efforts to constrain or deter their activities.[60]

Lesson 9. Surprise

The June attacks by Ukraine against Russian bomber airfields,[61] in an operation codenamed Spiderweb, and the Israeli drone attacks on Iranian air defence systems[62] at the beginning of the June 2025 operation to destroy Iranian nuclear facilities are just the latest in a long series of surprises delivered during the war in Ukraine—and beyond. Despite claims of battlefield transparency by some, it is still possible to deceive, surprise and shock one's adversary in modern war. As I described in a 2024 article:

> the term 'transparent battlefield' has been used a lot in describing the war in Ukraine. It is an unfortunate term because it is inaccurate. Military institutions may be able to see much more on the contemporary battlefield, but better visibility is not the same as more wisdom. No satellite, spy plane or drone can see into the minds of commanders or the hearts of combatants to assess their morale.[63]

Surprise is normally defined as striking at a place, time or location in a manner for which an adversary is not prepared. The war in Ukraine has delivered many surprises over the past 40 months. These have included Ukraine's initial surprise that Russia did not only invade in the Donbas region, and Russia's massive surprise at the resistance offered by the Ukrainian government and military forces during its assaults on the country in February 2022. Other surprises during the Ukraine war have included the Ukrainian offensive in Kharkiv in 2022, the attack on the Kerch bridge in October

2023, the failure of the Ukrainian offensive in 2023 and the Ukrainian Kursk offensive in 2024.

Advanced technologies employed by intelligence agencies and military forces now have greatly increased capacity to find adversary forces and anticipate their intentions. However, the agency of humans and their desire to achieve surprise against their enemies (and sometimes their friends) has been demonstrated throughout the war in Ukraine. Surprise is an enduring element of war. While this is not a new lesson, the past three years of conflict in Ukraine have underscored the need for governments and military organisations to heed and respond to surprise tactics with adaptation—and good leadership.

Lesson 10. Leadership

Perhaps the most important and enduring lesson from the war in Ukraine has been the centrality of wartime leadership. The war has provided a range of insights about national and tactical leadership, both the good and the bad.

The cardinal human skill in any institution is effective leadership. While it is crucial to success in civil and commercial institutions, the value of good leadership in military affairs can literally be the difference between life and death. Those who are appointed to lead nations, military forces and national security institutions—or to directly command military personnel on operations—must be able to lead, to influence and to inspire. To be an effective leader, they must develop the skills and interpersonal approaches to convince others to do very difficult things in demanding and dangerous circumstances. Key elements of good leadership are examined in the following paragraphs.

Good leaders develop good strategy. The past three years have demonstrated that getting strategy (and its foundational assumptions) right is critical to effective military operations. As Russia demonstrated early in the war, the outcome of poor strategy or strategic assumptions is that military organisations are employed to chase unclear or unachievable political objectives, that they are poorly resourced or that they are badly led. Ultimately, bad strategy is punished on the battlefield and in the international arena.

Good political leaders foster an effective civil-military dynamic. Civil-military relations theory provides a crucial explanation of how civil authorities exercise power over military affairs'. The relationship is what Eliot Cohen has described as an 'unequal dialog'.[64] The civil authority is not removed during a war, and indeed it becomes even more critical to ensure military activities are aligned with political outcomes, and that national resources support a range of outcomes beyond military affairs. Both Russia and Ukraine have experienced civil-military crises during the war in Ukraine. Russia saw a short-lived mutiny by Wagner leader Yevgeny Prigozhin in mid-2023.[65] Ukraine experienced a rupture in the relationship between the president and the military commander-in-chief, General Zaluzhnyi, in late 2023.[66] Both these events provide insights for the development of stable and effective models of civil-military relations in democratic nations.[67]

Leaders facilitate integration. The 1999 book *Unrestricted Warfare* described how 'the new principles of war are no longer:

> 'using armed force to compel the enemy to submit to one's will' but, rather, are 'using all means, including armed force or non-armed force, military and nonmilitary, and lethal and nonlethal means to compel the enemy to accept one's interests'. [68]

This integrated national war effort has been a key element of the Ukraine war and is a function of leadership. The integration of national efforts is a deliberate undertaking in the planning, execution and evolution of strategy. As I noted in *The War for Ukraine:*

> this is not just because nations need to use resources efficiently but also because it provides for more resilient strategy, offering adversaries fewer weaknesses or seams to target and exploit.[69]

Both Russia and Ukraine have developed increasingly effective integrated national approaches since 2022. This has included organisational evolution, learning and adaptation, and industrial research, development and manufacturing.

Leaders nurture learning and adaptation. The continuous evolution of technology, tactics and strategic imperatives in Ukraine drives learning and adaptation. Battlefield lessons must be analysed and disseminated to industry, training and other institutional endeavours. While combat leaders must learn and adapt to survive the next day, the learning imperative for

strategic leaders is different. They must ensure a military institution has a learning culture before war; it is a fundamental foundation for learning and adaptation during war. Adaptation at any level does not just happen; it must be led.[70]

Leaders provide purpose. Leaders must be able to sustain a dialogue with citizens that clearly explains why things are happening and why certain things must be done. This is difficult in the modern era, particularly in a saturated information environment. But done well, as Ukraine has mainly done it, it can unify a nation or a military institution. It is also the foundation of national will. An important insight from the Ukraine war is that national will is crucial to national survival. Further, nations are unlikely to assist others that do not demonstrate the will to defend themselves.[71] National will is also central to effective strategic deterrence regimes.

Leaders communicate purpose. Associated with this concept of will is the capacity to explain to citizens and foreign supporters how a country might succeed in war, and what the national theory of victory might look like.[72] Leaders set the expectations for conduct in war in how they provide purpose. The Ukrainian president has repeatedly reinforced that Ukraine will fight according to the rules. Not only has this commitment reduced unethical conduct in his military towards Russians[73] but also it has sustained international support for Ukraine—that is good leadership and good strategy.

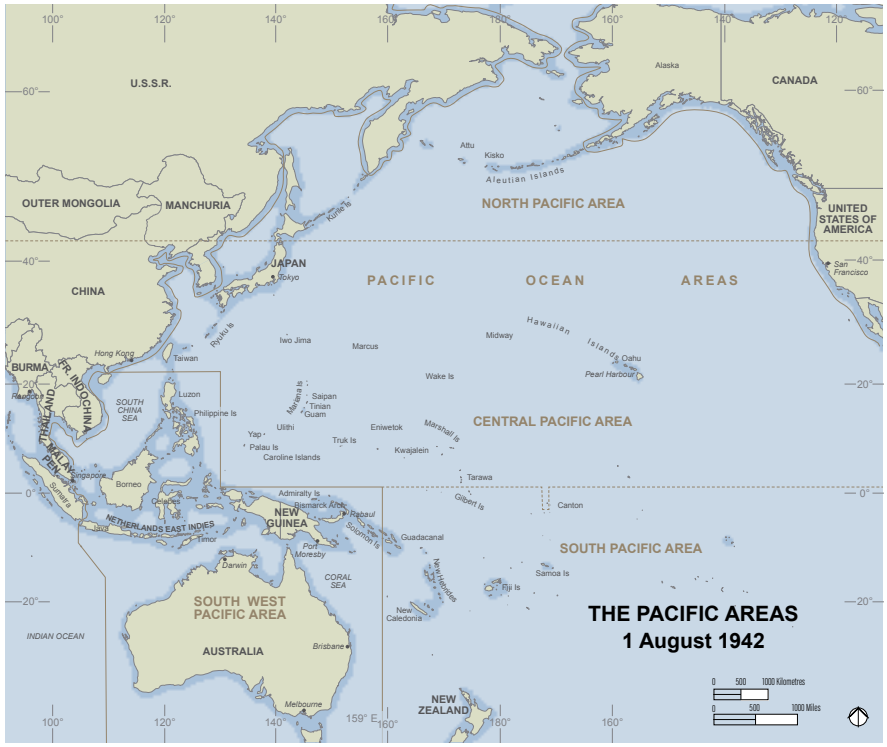
The war in Ukraine has reinforced an old lesson that good leadership matters. The proficiency of leaders has provided the foundation for success where it has occurred in this war. The identification and development of good leaders remains the core of all effective modern institutions.

II. Translating Ukraine Lessons for the Pacific Theatre

Insights from over three years of war in Ukraine provide defence planners with myriad opportunities and challenges in considering the evolution of the force structure, preparedness, training and leadership. Nevertheless, the differences between the European and Pacific theatres must be considered when translating the lessons of modern war from Ukraine into useable insights for Pacific military forces. Given the differences in culture, geography, politics, infrastructure and weather between eastern Europe and the western Pacific, a method for translating these lessons is needed to ensure that the observations gathered from the war in Ukraine are optimised for application elsewhere.

Before proceeding, the Pacific theatre needs to be defined. For the purposes of this paper, the Pacific theatre is defined by the areas that were encompassed by the Pacific Ocean Areas—North Pacific Area, Southwest Pacific Area, the Central Pacific Area and South Pacific Area—during the Second World War. This is also the location of the world's most dynamic economies, its largest military forces and the military competitions (between the US and China and between the Republic of Korea and North Korea) most likely to result in conflict.

The Pacific is also a unique geographic region which can be used as a test case to develop filters for Ukraine lessons that can be applied to other regions in the world.



Pacific Ocean Areas operational boundaries, Second World War
Source: U.S. Army Center for Military History[74]

Pacific Filters for Ukraine Lessons

There are multiple ways in which one might view the lessons from the war in Ukraine for other regions of the world. Ultimately, the key differences between eastern Europe and other parts of the world boil down to several broad areas: political differences, geographic and environmental differences, and differences in the capabilities of the likely military forces involved. Thus, this paper proposes that there are four 'Pacific filters' that can be applied to translate Ukraine lessons for use in the region. These are:

1. Geography and distance
2. Terrain, vegetation and weather
3. Political and cultural environment
4. Capability of potential adversaries.

The lessons of the Ukraine war from Section I of this report are measured against these filters to assess the relevance or otherwise of insights from Ukraine. Unsurprising, there are many useful insights which emerge for military and national security planners in the Pacific.[75] Many of these insights highlight the differences between Ukraine and the Pacific, but some lessons have very similar applications in both regions. While the insights on the following pages apply to the Pacific theatre, it would also be possible to develop similar products for individual countries in the Pacific theatre as well.

Pacific Filter 1: Geography and Distance

When one thinks of the Pacific, an initial consideration is the vast distances between places such as Hawaii and Guam or Australia and Japan. The distance from Hawaii to Guam is approximately 6,400 kilometres. The distance from the west coast of the United States (Los Angeles) to Japan is almost 9,000 kilometres, and to Australia is 12,000 kilometres. Much of the area one transits between these points is open ocean with only a few islands along the routes. Vast distances are a central characteristic of the Pacific. Overcoming the many impacts of these distances dominates planning and execution of military operations in the region.

But there are many parts of the region where the distances over which military campaigns might be conducted are much shorter: the Korean peninsula, China–Taiwan, some of the large islands such as Java and New Guinea, or the Philippines. Both strategic distances and the shorter regional distances need to be considered in the translation of Ukraine lessons for the Pacific.

The impact of distance and the island nature of many Pacific nations means, in some regions, more dispersed civil infrastructure networks, particularly ports, airfields, logistics nodes and telecommunications / data transmission, than in eastern Europe. The south and south-west Pacific regions are examples of areas with dispersed civil infrastructure. In other parts of the Pacific, such as western Taiwan, China and southern Japan, civil infrastructure is dense and very capable of supporting military operations.

While the Pacific contains many islands, and island nations, it also contains continents. The Eurasian landmass, Australia, and North and South America frame the Pacific theatre (with Antarctica to the south). While the likelihood of

large-scale combat on these continents might be remote, they nonetheless provide the strategic foundations—political, industrial and military—for nations that engage in strategic competition and combat in the Pacific theatre. These considerations matter for military activities and need to be considered when translating Ukraine lessons for application in the Pacific.

In considering Pacific geography and distances against the context of lessons from the war in Ukraine, the greatest impacts are likely in the following areas (drawn from Section I):

- **Mass and mobilisation.** Apart from Vietnam and South Korea, none of the nations in the Pacific theatre share land borders with their most likely adversaries. And while large-scale land manoeuvre is possible for these two countries, it is much less likely for other nations, allowing them to make different choices on capability development.

  While operations in Ukraine have featured air, land, maritime and space operations, the war has primarily been one fought on the land. Any conflict in the Pacific will have a different balance of land, sea and air operations. Pacific operations are inherently joint, because of the geography and distances involved and because of their predominant focus on the maritime environment. Consequently, nations involved in any conflict in the Pacific will require a different force structure and balance of environmental capabilities compared to the force structure of the Ukrainian Armed Forces.

  Additionally, given the vast distances involved in the Pacific, massing forces within this theatre will pose different challenges from those in Ukraine. For example, it will be possible to undertake 'economy of force' operations in many different parts of the theatre with smaller forces to deceive an adversary about the real main operational effort in a way not currently possible in the much smaller geographic area of Ukraine. At the same time, assembling larger forces (besides the survivability issues) will pose major transportation and logistics issues, as it did during the Pacific campaigns of the Second World War. Technology will help, but the challenges of distance and time remain the same as in 1945.

  At the same time, moving large force elements anywhere in the Pacific takes much longer, and potentially carries greater risk, than it does

in Ukraine. This has a cumulative effect on generating tempo. It also slows down reinforcements, resupply, responses to enemy actions, and efforts to backload wounded personnel and damaged equipment and platforms requiring repair. As the lessons from campaigns in the Pacific theatre during the Second World War demonstrate, a much larger and broader assortment of air, ground and maritime transportation systems (crewed and uncrewed) is needed in the Pacific compared to Ukraine.

- **Meshed sensor networks.** The disaggregated nature of the Pacific theatre means that achieving a joined-up picture of military operations (as Ukraine and Russia can along 1,200 kilometres of front line) will be more difficult. It will also require a different mix of aerial, maritime, land, and space sensor systems. And covering the vast swathes of the Pacific will have to be an alliance task, rather than one for a single nation, necessitating more work on technical integration, trust building and information sharing. Developments in open-source intelligence during the war in Ukraine, however, mean that open-source information repositories can provide a common foundation for alliance and security partners in the Pacific.

  Unlike the situation in Ukraine, both potential belligerents in a future war in the Pacific own vast constellations of satellites for communications, sensing and precision navigation and timing functions. And, given the centrality of these functions for all intelligence and military operations, it is likely that both belligerents will undertake counter-space operations to degrade the space-based capacity of their adversary. The likelihood of space-based combat in a future Pacific contingency is one of the fundamental differences between the war in Ukraine and one in the Pacific. The vast size of the Pacific and the inability of terrestrial capabilities to cover such a large area means that satellite capability will be much more important in the Pacific than in eastern Ukraine. The country that can protect its on-orbit vehicles, ground stations and links between them—as well as rapidly replacing those components of this system that are destroyed by the adversary—will have a significant advantage in a future conflict.

  The effort entailed in building awareness across such a vast proportion of the earth's surface, and collating so many different information sources in doing so, brings to the fore the potential contributions of AI. Given the application of AI in Ukraine, and the experiments with

this technology elsewhere, there are broad-ranging applications for AI in imagery analysis, speeding up planning across all military functions, accelerating targeting processes, prioritising judicious munitions employment, theatre-wide logistics, communications security, apportionment of equipment and personnel, and combating misinformation.

- **Ubiquitous uncrewed systems.** Saturation of autonomous systems, as in eastern Ukraine, will be more difficult to achieve in the Pacific area of operations. It will be possible to achieve in parts of the theatre, such as the Taiwan Strait, but it is likely that there will be significant distances between saturation areas. Therefore, military forces will require concepts for both condensed drone operations in certain areas and at certain times, and non-contiguous saturation operations. This could include a Pacific version of the 1,000-kilometre-long defensive 'drone wall' being constructed by the Ukrainians. Manifestations of long and deep concentrations of drones for surveillance and attacking enemy targets will include the US Hellscape[76] concept for the Taiwan Strait but may also see the development of myriad offensive and defensive operations reliant on uncrewed systems across the Pacific theatre.

  Uncrewed systems may provide useful solutions to the scale and vast expanse of the earth that logistic operations must cover in the Pacific. The quantity of military transportation systems available across the Pacific in contemporary military forces will not be sufficient, however, for the demands of any large-scale conflict. While civil vessels will be part of the solutions, as they have in other modern conflicts, both military and civilian maritime and aerial logistics are likely to be a priority target for Chinese, Russian and other forces in any war. This will impose a massive insurance burden for civil shipping and aircraft operators and will probably see them used only for rear operations.

  For logistics forward of Hawaii, uncrewed systems probably offer the most survivable and effective solution. Uncrewed aerial and maritime systems will be needed to expand the reach, capacity and dispersion of allied logistics. One example of projects being developed to meet this need is the US Night Train concept, which sees semi-submersible uncrewed vessels that carry standard shipping containers being used to add resilience to logistic networks.[77]

Developments in uncrewed mothership drones—in the air and maritime domains—may assist in covering the large distances involved in the Pacific. Ukraine has used maritime platforms to launch aerial surveillance and strike drones in the Black Sea, and in May 2025 used a long-range aerial mothership to deliver shorter-range strike drones to their targets several hundred kilometres inside Russia.[78] But, as is explored in the following section, the proportion of long-range to short-range drones in the Pacific will be different to that in Ukraine. This will have cost impositions.

Finally, China is developing an array of uncrewed systems which will be employed in any conflict. While there are no definitive indications that China is developing its own version of Hellscape, given its efforts to develop a layered defensive construct from the first island chain in the past two decades, it must be assumed that such an effort may be undertaken east of Taiwan or elsewhere. Given the vast distances involved in the Pacific, counter-drone defences will therefore be required over larger areas—particularly forward supply routes—and in many more dispersed locations. This includes the home base locations in countries such as Australia, the Philippines, Japan and Hawaii. This will pose a challenge for operational prioritisation, as well as the maintenance and resupply of hundreds, possibly thousands, of counter-drone defensive units.

- **Cheaper, accessible precision long strike.** Long-range strike capabilities come to the fore in the Pacific theatre. While close combat will still be necessary in some regions, combatants will bias towards long-range strike operations in the early phases of a conflict. Not only will this be a way for belligerents to attack critical nodes at distance; it will also be a method to influence early political solutions to conflict. But, as the first couple of years in the Ukraine war demonstrated, these strikes are often conducted in pulses because of limited holdings of long-range missiles and drones. It takes time to ramp up production of these weapons. Nevertheless, as both Russia and Ukraine have shown, these munitions are a priority for wartime production, and they are now used in their hundreds each day. We should expect a similar trajectory in any Pacific conflict, noting China and the US will both commence any conflict with a larger quantity of missiles initially than did Russia and Ukraine. Because of the military utility of long-range strike in the Pacific,

these lessons from Ukraine have been increasingly integrated into the force structure developments in countries such as Japan,[79] the United States and the Philippines.[80]

A more recent trend in the conduct of long-range strike has been the infiltration of short-range attack capabilities into enemy homelands, placing the launch platforms for these in proximity to the target and then conducting the strike from well inside the enemy defensive system. Ukraine's Operation Spiderweb and Israel's first-wave strikes against Iran's air defence systems, both in June 2025, are early exemplars of this style of operation conducted as part long-range raid and part long-range strike.

This style of non-contiguous strike is probably even more suited to Pacific operations. The maritime environment permits multiple axes of stealthy approach to strategic and operational targets with platforms that can then launch short-range weapons and munitions against their targets. These short-range systems may not just be drones; they might also comprise rockets or even uncrewed ground and maritime systems. While this operational method does not replace more traditional long-range strike missiles and drones, it will henceforth form a larger proportion of strike operations during conflict.[81]

Long-range strikes in Ukraine and Russia have not been a purely technological undertaking. These strikes often require human operators on the ground to collect information that contributes to target packages, and to also assist in the conduct of strikes and the assessment of success (or otherwise) of these strikes. Unlike in Russia, which shares a land border with Ukraine and other countries through which human operators (primarily special forces) might be inserted, the Pacific is a much less contiguous theatre for such insertions. Different methods, and longer lead times, will therefore be needed.

- **The Rapid Adaptation War.** Distance will drive different solutions before and during war. It is likely that learning and adaptation in communications, logistics, and command and control methods/structures may have the greatest impact in the Pacific theatre. Additionally, individual nations and potential warfighting coalitions require established learning and adaptation systems, only some of which exist.

Sharing lessons may be more problematic in the Pacific theatre because of distance. Friendly forces will not always be able to interact with forces adjacent to them, meaning they will need to rely more on communications. But we cannot afford to assume that in the Pacific their existing methods of communication will not be interfered with by adversaries. This risk will complicate efforts to share operational learning and adaptation and may thereby slow it down compared to the rapid learning evident in Ukraine.

- **Surprise.** The potential for surprise in Pacific operations is much greater than that in the Ukraine war because of the huge distances involved and the potential for surveillance gaps that might be exploited by military forces. While coverage of the Pacific with meshed commercial-military surveillance and analysis networks means the theatre is subject to greater scrutiny than it was during the Pacific War, clever operational approaches are still possible that will surprise military commanders at the tactical, operational and strategic levels.

  Distance will provide more opportunities for strategic and operational deception in the Pacific theatre. This will probably require an adaptive response given that the most likely adversary in the Pacific embraces deception and subterfuge as part of its national and military postures and will be focused on identifying and countering deception by Western military forces. And while the Pacific War demonstrated that distance could be used to deceive and achieve surprise (as in the Japanese attack on Pearl Harbor, the Battle of Midway and the Allied Operation Wedlock to deceive the Japanese about a landing in the Kuril Islands in the lead-up to the 1944 Marianas landings),[82] modern sensor networks deployed by China and Russia will make deception more difficult. However, as Ukraine's operations in Kharkiv in 2022 and Kursk in 2024 demonstrate, deception and surprise are still possible on the contemporary battlefield.

- **Leadership.** The geography of the Pacific, and the western Pacific in particular, has important differences from the geography of Ukraine. Xi and the CCP are probably confident that they will have learned lessons concerning the exploitation of time from the Ukraine war. In response, refinements will be underway to their contingency plans for Taiwan, including ways to distract the United States and Europe, to delay their intervention for as long as possible. They will also be looking at ways to

act against Taiwan and other nations in the western Pacific that will tie up the Americans and their allies within the region in decision-making knots.

Taiwan is distant from the nearest country that might be able to support it. The People's Liberation Army (PLA) will undoubtedly exploit this in any aggression against the island nation. And while the PLA might believe that a lightning operation would be the preferred method to shock the Taiwanese into submission, it may also, if that does not succeed, believe in a back-up plan to wait out an impatient West. Chinese academics believe that American technological advantages can be mitigated through protraction of conflict because it exploits the current analyses about limitation of the US defence industrial base.[83] Wang and Zakheim have written of Chinese discussions on this topic that:

> the United States, the West, and their proxies have obvious technological advantages over the Russian military, but they gradually lost this advantage as the war developed … protraction through accepting high human costs could shift the key factors of victory from modernization level to defense industrial base capacity and national defense mobilization.[84]

The size of the Pacific theatre also lends itself to less centralised forms of command for all military forces. Not only does distance magnify the impacts of any interruption to communications in military forces (which are almost certain); the sheer variety of different environments in which military forces might operate means that local knowledge and empowerment of local commanders will be even more important than it is in Ukraine. This need for mission command is magnified by the wide variety of cultures, languages and governments with which disaggregated military leaders will need to interact.

Pacific Filter 2: Terrain, Vegetation and Weather

The terrain, vegetation and climatic conditions in the Pacific are quite different from those in Ukraine.

Terrain is the first major difference between Ukraine and the Pacific. While Ukraine has cities, rural populations, mountains and plains, beaches and river lines, the Pacific not only has more of each but is not dominated by the

land domain like Ukraine is. Open ocean and littorals feature heavily in the Pacific region and are essential to the conduct of military operations in a way that they are not in Ukraine. Additionally, there are mountainous areas in the Pacific, such as in eastern Taiwan and in Papua New Guinea (PNG), which are potential locations for military operations. This has not generally been the case in Ukraine.

Vegetation is also very different. For example, the vegetation cover in many parts of the Pacific can be up to 90 per cent, while in Ukraine it is much less at nearly 17 per cent.[85] For example, Taiwan has vegetation coverage of forests on 60 per cent of its land,[86] the Philippines has 63 per cent coverage of forests,[87] Solomon Islands has 85 per cent forest coverage,[88] PNG has 88 per cent of its land area covered by natural forest and has 92 per cent overall tree cover,[89] and Manus Island (a likely allied base in Pacific operations and part of PNG) has 88 per cent vegetation coverage.[90]

Many parts of the Pacific region receive significantly more precipitation on an annual basis and have far higher humidity and temperatures than Ukraine. These conditions will have an impact on many elements of military campaigns, including communications, fires, medical support and the use of autonomous weapons—especially aerial and ground systems.

Finally, while Ukraine's winter and mud seasons have an impact on operations, for around a month each spring and autumn[91] the annual cyclone and typhoon seasons across the western Pacific potentially constitute an even greater impact on military operations. The typhoon season extends in Japan from May to October, in Taiwan from May to November, and in the Philippines from June to November. The cyclone season in PNG and Solomon Islands extends from November to April.

These highly destructive tropical storms not only destroy large amounts of civil infrastructure but can also have a major impact on military operations. During the Second World War, for example, Admiral Halsey's Third Fleet endured two typhoons during operations in the western Pacific ('Cobra' in December 1944 and 'Viper' in June 1945) which sank ships, caused damage to dozens of ships and impacted flying operations.[92] Weather also adversely affected military operations in the Vietnam War. As Mangesh Sawant describes in the 2023 article 'Weather: The Only Constant in Warfare':

> The weather of Vietnam lengthened the Vietnam War and contributed to the protracted strategy of the Viet Cong. Weather profoundly impeded U.S. Air Force operations and air strikes on critical targets in Vietnam, so much so that the issue reached the highest levels of the U.S. government, to include President Lyndon B. Johnson.
> In addition, weather often interfered with reconnaissance activities and the monitoring of surface-to-air missile (SAM) sites. The U.S. Army typically replaced equipment every eight years. During the Vietnam War, this was cut to two years.[93]

Finally, the different weather, vegetation and terrain also has an impact on casualties due to tropical diseases. While the lessons emerging from the war in Ukraine on casualty care (and what some are calling the 'live chain' for medical operations) will inform medical evacuation and treatment regimes in the Pacific, one important distinction must be drawn. Based on historical experience, the rates of disease in the Pacific due to a range of environmental factors (including terrain, vegetation and weather) are higher than in the European theatre. The best source of data on this is the US Army, which is one of the few military organisations that sustained large concentrations of troops in both theatres between 1941 and 1945 and kept accurate records. According to the US Army medical statistics for World War II, troops in the south-west Pacific had double the death rate from disease than those in the European theatre.[94] The south-west Pacific had the highest rates of diseases including malaria and infectious hepatitis, and had numbers of diagnoses for dysentery and diarrheal disease that were nearly 400 per cent of those in Europe.[95]

In considering this reality against the key lessons of Ukraine, the factors of **terrain, vegetation and weather** have the greatest impact on the following:

- **People.** Given the observed disparity in the prevalence of disease between Europe and the Pacific theatre during the Second World War, it is likely that there will be an elevated risk of infection and disease in contemporary Pacific theatre operations compared to those in Ukraine. This highlights the importance of preventative health measures. Additionally, the nature of the terrain, as well as the distances between islands and different areas of operation, means that casualty evacuation may be more complex and time consuming than it is in Ukraine.

- **Meshed commercial-military sensor networks.** One of the most important form of sensors on the Ukrainian battlefield is uncrewed aerial systems. These have become ubiquitous, aided by the low vegetation coverage on the eastern front. However, the high vegetation coverage in most parts of the Pacific will degrade drone sensor performance. As a 2024 study of the topic found, 'foliar cover, defined as the area above the soil covered by the vertical projection of exposed leaf area presents a major limitation for UAV-based object detection in vegetated environments'.[96] In short, trees and foliage cover degrade drone performance and sensor penetration. This is hardly a new military challenge; the thickly vegetated environments of the western Pacific posed significant challenges for surveillance and reconnaissance during the Second World War, the Malayan emergency and the Vietnam War.

  Technologies such as radar, lidar and synthetic aperture radar have improved the capacity to see through vegetation, however, and these sensors will all be vital payloads in the uncrewed (and crewed) surveillance systems to be deployed across the Pacific theatre. One recent advance is airborne optical sectioning with drone swarms. This uses multiple drones over a single area to build a picture of what is under vegetation, scanning from multiple directions.[97] Such approaches have been aided by recent developments in the miniaturisation of synthetic aperture radars for drones.[98] Coupled with new algorithms for targeting,[99] these technologies offer potential to significantly improve military capacity to penetrate vegetation across many parts of the Pacific theatre.

- **Ubiquitous uncrewed systems.** Precipitation, reduced visibility due to clouds, and high temperatures, all of which are characteristics of the climate nearly all year round in most areas of the Pacific, have an impact on drone operations.[100] Rain can cause water damage to drone electronics, potentially leading to malfunctions, and strong winds can push drones off course, making it difficult to maintain precision in navigation. Adverse weather has been found to have a negative impact on the operations of most kinds of uncrewed aerial vehicles in Ukraine,[101] and this impact should be expected to have an even larger influence on the operations of drones in the Pacific region. At the same time, the higher average temperature in the Pacific is likely to reduce the energy in drone batteries and accelerate their aging. This will require

more frequent resupply in a logistic network that is likely to be spread much thinner in the Pacific than it is across European networks.

High humidity, another characteristic of the Pacific region, can also interfere with the communications necessary for drone operations, including the conduct of electronic warfare. This signal attenuation also occurs with satellite communications during periods of rainfall, which reduces the strength and quality of communications links. In a region where long distances are the rule, this is a major differentiation from Ukraine that should be addressed. This, along with the tyranny of distance, will make the concentration and saturation operations of autonomous systems (particularly aerial systems) more challenging than in Ukraine.

- **Cheaper, accessible precision long-range strike.** Because of the potential for shorter-range drones to have their capabilities degraded by climatic influences in the Pacific, and the impact of larger distances, military institutions will probably need a different mix of long- and short- range crewed and uncrewed strike systems. While Ukraine is now manufacturing 4 million drones per year, only around 30,000 of them are long-range variants.[102] This ratio of short- to long-range drone variants will not work in the Pacific; a much larger proportion of long-range drones will be needed—be they aerial or maritime. This means that different manufacturing priorities and strategies will be necessary for those who expect to operate in the Pacific compared to those adopted by Ukraine in the past three years.
- **The adaptation war.** The different weather, vegetation and terrain of the Pacific theatre will drive solutions to operational problems in the Pacific that will probably differ from those in Ukraine. The ability to not only avoid the effects of weather, vegetation and terrain but also exploit their advantages (particularly for masking friendly operations and deception) may see very different adaptations to operating concepts across the domains. This will have impacts on communications, logistics, technology and training in military institutions that expect to conduct operations in the Pacific theatre.
- **Surprise.** Geography, weather and vegetation all offer significant opportunities for tactical or even operational surprise in the Pacific. While the same opportunities are possible in Ukraine—and have

certainly been exploited throughout the war—the potential in the Pacific is much broader. However, the key issue will be whether the achievement of tactical surprises in isolated parts of the Pacific will make an actual difference to the key campaigns in a likely conflict. Such campaigns may include cognitive warfare, long-range strike, generation of operational tempo, and campaign logistics and personnel reinforcement.

Pacific Filter 3: Political and Cultural Environment

The political and cultural environment in the western Pacific region is very different to that which exists in Europe. There is nothing like the EU and there is no Asian version of NATO (nor is there likely to be). CCP strategy includes efforts to corrode any regional multilateral arrangements and alliances which it sees as adversely impacting its interests. The military and economic relationships between different Asian nations, and with countries outside the region, are quite different from those that exist in eastern Europe. This is an important consideration when seeking to translate strategic lessons from Ukraine, because different alliance constructs will influence different methods of deterrence and different ways of fighting, and supporting fighting, in the Pacific region.

In considering this factor against the key lessons from Ukraine, the following insights are provided:

- **Mass and mobilisation.** The perception of threat is different between Ukraine and many Pacific nations. This difference in perception results in different force structures, readiness structures and government national security policies than those that are desirable or possible in a nation at war and under an existential threat like Ukraine. It follows then that the different perception of threat in Pacific nations also results in a different allocation of national resources for national defence. However, this realisation should not prevent countries from at least investing in the planning for national mobilisation of people, industry and ideas. Not only do such measures provide a contribution to a nation's deterrence strategies but they should also provide something marginally better than a *cold start* should war break out in the Pacific and some kind of mobilisation—limited or total—be needed.

- **Cognitive war and inter-societal conflict.** Russia has undertaken a wide-ranging misinformation campaign since before the beginning of the full-scale invasion in February 2022. These operations have also spread disinformation throughout multiple social media platforms to undermine the legitimacy of Ukraine's government (and sovereignty) and Western support for it. Putin's strategy has embraced an assumption that Western politicians and citizens lack the patience for long wars, as seen in places like Somalia, Afghanistan and Iraq. There is some basis for this assessment. Therefore, Putin's strategy since late 2022 has been based on the idea that the West will eventually lose interest in Ukraine.

  Xi and the CCP probably judge that a similar situation might pertain to any action against Taiwan. While Chinese military forces may seek a quick, decisive victory, the Chinese leadership might have to revert to a much longer-term strategy in the hope that politicians and citizens in the US, Europe, Japan and elsewhere lose patience with the prospect of waging of a future war against China.

  Both Europe and the Pacific region contain a variety of different ethnic and language groups which demand different approaches to cognitive warfare. Despite this, Russia has used strategic influence and cognitive warfare to try to break down relationships and sow discord among Ukraine's foreign supporters.[103] Since 2022, Russia has expanded its efforts, focusing on discrediting the Ukrainian government, and shaping global narratives about the war in Europe and the global south.[104] According to Odarchenko and Davlikanova, in order to influence targeted nations, Russia has:

  > sought to highlight economic problems in Europe and North America, while pushing the idea of growing Western public dissatisfaction over issues such as identity politics and minority rights. Meanwhile, Russia positions itself as a bastion of traditional family values.[105]

  China is already active in the Pacific, seeking to break down relationships and traditional security alliances. This dynamic does not occur at the same scale in Europe. As a study by the International Institute for Strategic Studies notes:

  China uses disinformation operations to discredit political leaders and

to deter the Taiwanese electorate who may be supportive of Taiwan proclaiming de jure independence. In the Philippines, China has pushed the narrative of it being a positive regional actor and has cast doubt on the United States' leadership to drive a wedge in US–Philippine relations.[106]

China has also focused its efforts on smaller nations, such as the Cook Islands, to increase its influence and to shift the traditional relationships and views of these Pacific nations away from the US and Australia towards a posture more favourable to China.[107] Any conflict in the Pacific region would see an expansion of these Chinese efforts, similar to Russia's expanded strategic influence operations in the past three years.

- **Alliances.** While Russia has few allies and supporters in Europe, China is building a network of relationships across the Pacific in a way Russia has not in Europe. China is using senior visits, exercises, police cooperation and professional military education activities to build military links and to reinforce economic ties.[108] In addition to building such links, this is also part of a strategy to break down the US alliance and security framework in the Pacific in a way that Russia has not been able to achieve with Ukraine's supporters (with the possible exception of the United States). Developments since the inauguration of President Trump have accelerated these efforts. As a recent Center for Strategic and International Studies report notes:

  > China is also likely taking advantage of what it sees as a period of uncertainty in U.S. reliability in the region, reminding smaller and middle powers alike of the economic and military might that China can bring to bear on the region. As the United States rescinds or pauses virtually all its development assistance abroad, and while the Trump administration ponders downsizing diplomatic presence worldwide, it plays directly into the narrative of a disinterested and unreliable global power.[109]

  A 2025 RAND report puts it more bluntly: the CCP views US alliances as vulnerable targets.[110]

  Ukraine has demonstrated again that interoperability is important in coalition warfighting. Common doctrine, training and staff processes, as

well as shared learning and adaptation systems, are core elements of working together in alliances and military coalitions. While the system to achieve this interoperability is an integral part of NATO, these systems in the Pacific will be supported by the web of US alliances as well as the security partnerships in the region. While Australia, the US, Japan and the Philippines have made admirable progress towards interoperability in the past few years (with their collective and individual training as well as large-scale joint exercises), Taiwan has not been able to participate in large joint exercises with foreign partners for many years. Given that this is unlikely to change soon, Taiwan must rely on non-alliance interoperability frameworks to derive lessons from the experiences of Ukraine and Russia since 2022. This will make its learning more difficult to achieve but is not an insurmountable challenge.

- **The adaptation war.** Recently, several experts from the Center for Strategic and International Studies conducted a study of Chinese writings on the war in Ukraine. Their findings, not surprisingly, indicate that China is studying the war very closely. Every aspect of warfighting, from the national level to tactical operations, is being reviewed by different Chinese scholars and military theorists.[111] Among their findings, perhaps the most important lesson will be how Western nations make decisions about war. The Chinese leader will have been closely watching how the US President (then Biden), the US national security enterprise and the NATO alliance make policy decisions about the war in Ukraine. The CCP will be examining the intricacies of how Russian policies and actions have influenced Western decision-making about the war. The CCP will have been observing not only how politicians make decisions but how Western media influences or responds to such decision-making, as well as how citizens influence government decisions. Each of these groups will be seen as variables that China either currently seeks to influence or might want to influence in future contingencies.

  Notwithstanding this, unlike in Europe, where a well-established NATO alliance exists and has supported Ukraine, no holistic alliance framework exists in the Pacific. The alliance framework in the Pacific is based on US alliances with Japan, the Philippines, Australia and New Zealand, as well as security partnerships between the US and many other nations. While this might represent a weakness compared to the formal alliance structure of NATO, it is also a more flexible arrangement that

is not reliant on consensus decision-making in peace and war. Despite China's views on the vulnerabilities of the US relationships in the Pacific, the greater flexibility inherent in the Pacific framework could be an advantage for any future Pacific conflict.

- **Leadership.** The key elements of leadership lessons learned from Ukraine have universal application. Perhaps the most applicable lesson from Ukraine for the Pacific is the importance of national leaders unifying their nation and gaining external support. Zelenskyy has done this in the past three and half years. The Chinese leader will be pondering how to prevent a Taiwanese president generating such influence. The CCP and PLA will be examining ways to prevent Western military and other forms of assistance to the Taiwanese.

  While political leadership is important, leadership at lower levels also matters. And just as the Russians have discovered, China believes it has weaknesses in its leadership in the military arm of the CCP. President Xi has undertaken an ongoing purge of senior PLA officers over the past several years to stamp out corruption in the PLA and improve its political reliability.[112]

  Competent leadership at the national level is an essential part of warfighting capacity and strategic deterrence regimes. But so too is effective military leadership at all levels. This lesson from Ukraine applies as much to the Pacific as it does in eastern Europe. Given the Chinese weaknesses discussed above, these factors comprise a targetable vulnerability in Chinese forces like those in Russian forces. These targetable vulnerabilities should be a focus of planning and training in the military forces of the US, Australia and their allies in the region.

Pacific Filter 4: Capability of Potential Adversaries

While Russia poses an existential threat to Ukraine and a very severe threat to the rest of Europe, its military capacity and size is smaller than China's in nearly every aspect other than the size of the nuclear arsenal. China has the largest navy in the world and has significant capabilities across all domains. In the western Pacific, it will be fighting a home campaign.

North Korea (which is a co-belligerent in the Ukraine war) and Russia have a significant presence in the Pacific. Russia and China have conducted

multiple joint strategic bomber patrols in the Pacific and have also been undertaking joint naval exercises in the Pacific in 2024. This is a more complex, dangerous and complicated arrangement of adversaries than is faced by nations in Europe. In considering this factor against the key lessons of Ukraine, the following insights are provided:

- Mass and mobilisation. Both China and North Korea have large, standing military forces, which contrasts with many other nations in the region. China also has a much larger population than Russia from which it can draw military personnel in the event of a prolonged conflict, and a larger workforce that might be redirected into the defence manufacturing sector. China has a large manufacturing capacity and an advanced defence industry that could be further expanded in case of war. Driven by the massive expansion of the PLA in the past two decades, China's defence manufacturing capacity is significantly larger than Russia's and represents a much higher start point for regeneration of forces in the event of war.[113] This manufacturing base also extends to the production of cyber weapons and the development of many algorithms to aid in future warfighting.[114]

  At least initially, those in conflict with these nations will need to find additional sources of advantage beyond mass. Europe has pledged to expand its defence spending and its defence industrial capacity to deal with a Russian military that is smaller and potentially less capable than China's. Consequently, Western-oriented nations in the Pacific, particularly Japan, Korea and Australia, will need to significantly increase spending and production if they expect to deter more serious forms of Chinese military aggression across the Pacific theatre.

- Cognitive war and inter-societal conflict. Both Russia and China value information operations to achieve their strategic objectives. The Chinese are likely to use similar techniques in Pacific operations to those the Russians employ against Ukraine. As a Center for Naval Analyses report notes:

  > Russia and China have state-run media companies that can help promote their talking points … recently both Beijing and Moscow have been trying new tactics to push their messages in countries where consumers might dismiss state media as propaganda. One tactic both countries have employed is using Western vloggers—video bloggers—who live in China or Russia.[115]

However, in the dissemination of its strategic messaging and conduct of cognitive warfare, China's methods and understanding of their targets are not the same as Russia's. As a report for the Foreign Policy Research Institute notes:

> Russian information operations show a generally higher level of familiarity with US culture, regional differences, and political factions, leading to more effective content that typically resonates better with their target audiences. For the time being, China does not seem to have the familiarity with, or depth of understanding of, US culture as their Russian counterparts, which further hampers their campaigns' effectiveness.

Additionally, China does not possess the same form of oligarch media network that Russia controls, preferring instead to use state media outlets. China is, however, evolving this approach by seeking to employ regional and local outlets to carry its messaging.[116]

Analysis of these differences in approach and understanding may yield targetable vulnerabilities in Chinese cognitive warfare and strategic influence campaigns.

- **People.** China, like Russia, has issues with the quality of its military personnel. However, the Chinese president has openly identified these issues. The quality of PLA personnel was described as requiring a 'sense of urgency' by President Xi in his 20th Party Congress speech.[117] The development of military leaders who are able (and permitted) to think laterally remains an institutional problem.

  This issue was explored in the excellent piece by Corbett, Xiu and Singer, where they describe how:

  > despite some recent success in recruiting a higher-quality, more-educated voluntary force, the PLA has likewise failed to move away from conscription. It presently requires about 660,000 two-year conscripts, many lacking even partial high-school education, to fill out its ranks. The PLA places heavy emphasis on personnel political education, and Chinese conscripts have been raised from an early age to believe in the necessity of 'liberating' Taiwan. Still, the PLA is surely watching with concern as a conscript force with at least some similarities to its own fares so poorly, and will likely redouble

> their campaign to attract more, and preferably higher-quality, voluntary recruits.[118]

The lesson from Ukraine for the Chinese military is the need to accelerate PLA reforms to increase the quality of military training and education. The lesson for Western forces that may fight the PLA is that Chinese quality shortfalls might be an exploitable vulnerability. But another lesson is that like Russia, China will probably use mass to overcome shortfalls in personnel quality. Indeed, even more than Russia, China has an almost inexhaustible supply of people to throw at battlefield and industrial challenges compared to any Western adversary it might face. Consequently, the lessons on personnel quantity and quality from Ukraine are highly relevant to the Pacific theatre.

- **Meshed commercial-military sensor networks.** China has developed a very sophisticated and robust surveillance network out to at least the first island chain and probably well beyond it. This means that any effort to move forward from Hawaii or Australia is likely to be detected, surveilled and potentially attacked in a wartime scenario. This sensor network includes technologically advanced space and maritime systems, as well as the operations of China's main spy agency—the Ministry of State Security—which is now probably the largest intelligence agency in the world. This Pacific surveillance system is complemented through the activities of its police training programs in the Pacific islands and the activities of its diplomats.[119] This is a surveillance network that is at least as robust as the one Russia has in Europe and probably more so. This situation poses many challenges for maintaining military operational security.

- **Cheaper, accessible precision long-range strike.** The June 2025 Ukrainian strikes on Russian bomber airfields clearly demonstrated the expanding capacity of Ukraine and Russia to conduct deep strikes against strategic military and civilian targets. Like Russia, China has a sophisticated arsenal of long-range strike weapons at its disposal. As a report from the Center for Strategic and Budgetary Analysis describes:

> Over the last two decades, China and Russia have invested heavily in advanced military systems to offset the superior conventional capabilities of the United States and its allies. Their so-called anti-access and area-denial (A2/ AD) complexes of integrated air

> defense systems (IADS), long-range precision strike plat- forms, and other advanced weaponry are designed to raise the cost to the United States and other countries attempting to project military power into their respective regions.[120]

Like Russia, China sustains nuclear weapons as part of its strategic arsenal as well as for potential regional contingencies. The Chinese arsenal of these weapons is much smaller than Russia's, but it is growing. Additionally, both North Korea and Russia in the Pacific maintain nuclear warheads for strategic and operational strike missions.

China retains sufficient warheads (a stockpile it is growing) to provide a credible strategic deterrent. China also has developed a mix of over 1,250 surface-launched, sub-launched and air-launched ballistic and cruise missiles capable of hitting targets in Taiwan, the Japanese Islands and beyond.[121]

The Chinese conventional missile arsenal is significant.[122] However, the Chinese missiles would need to be employed over a much larger swathe of the earth's surface than Russia has to worry about in Europe. This situation offers opportunities for friendly dispersion of forces but reinforces the need for advanced missile defence capabilities for high-value military and civil infrastructure targets.

China's capacity for long-range strike is enhanced by its larger array of space-based sensors to aid in targeting and a very capable anti-satellite capability.[123] And, because Ukraine largely employs data from partner satellite constellations which Russia does not (yet) attack, it has a passive space defence capacity. The situation is different in the Pacific. China's very advanced and expanding counter-space capabilities—supported by a large ecosystem of ground-based space research and development units and infrastructure—will almost certainly be resilient and used aggressively against the United States and its allies in a conflict in the Pacific theatre.[124] China also has the capacity to replace any satellites destroyed in a conflict. In the year to September 2024, it placed 200 satellites in orbit.[125]

The human element of preparing for, and conducting, long-range strike is a key difference between Ukraine and the Pacific theatre. While Russia and Ukraine share land borders[126] which can assist in

infiltration, as well as ethnic and linguistic characteristics which assist in sustaining the cover stories for human operators, this is not the case in any conflict in the Pacific against China. Should operators from Western nations need to penetrate the China mainland to collect information for, and support execution of, strategic strike operations, they will require a deeper level of cultural, ethnic and linguistic preparation. Indeed, any human operators who do not appear to be ethnic Chinese in such a conflict are likely to be compromised quickly.

Adding to the challenge is the very tight control that the Chinese regime exercises over the information environment in China. This includes travel restrictions, biometric checkpoints, ubiquitous advanced CCTV networks, and the very aggressive counter-intelligence operations undertaken by the Chinese Ministry of State Security. Such measures will ensure that, in any future Pacific contingency, the conduct of special operations activities within China is likely to be much more challenging than the conduct of those undertaken by Ukraine within Russia.[127]

- **Alliances.** Ukraine has relied on its security partnerships with individual nations as well as NATO for a huge array of military, economic, intelligence and training assistance packages during its defensive war against Russia. In almost every imaginable military scenario in the Pacific, friendly forces will require a network of alliances to push back against Chinese, Russian or North Korean aggression. This will necessitate access to national airfields, ports and other infrastructure, and will require the establishment of status of forces agreements as well as the conduct of training and military rehearsals long before any military contingency. But a May 2025 report authored by Daniel Byman notes:

  > Most U.S. operational plans include a major role for allies and partners, providing for basing, access, pre-positioning, logistics, and coalition operations. Protecting allied territory and populations would also be an important U.S. mission in many scenarios. [But] even when allies are rhetorically embraced, they are often treated as afterthoughts.[128]

  The Pacific theatre also sees the interaction and potential collaboration of three major military threats to the United States and its allies across the Pacific: Russia, China and North Korea. Indeed, the 2025 US Defense Intelligence Agency Worldwide Threat Assessment notes that

'leaders in Beijing, Moscow, Tehran, and Pyongyang will strengthen their nations' ties in their drive to undermine the influence of the United States and its allies'.[129] While North Korea may have deployed forces to fight against the Ukrainians alongside the Russians, this is a small commitment overall. The nature of cooperation between China, Russia and North Korea in the Pacific theatre may be much more significant. China and Russia already conduct joint maritime exercises[130] and they have also conducted multiple joint bomber patrols in the past year.[131] Given the expansion of Chinese military capacity, and the development of China-Russia relations agreed by Putin and Xi in May 2025, the capability for China-Russia military operations in the Pacific is being significantly enhanced.

One of the most profound differences between the war in Ukraine and any potential conflict in the Pacific is the disparity in Russian and Chinese economic capacity and potential. While Russia has a large economy which is around the same size as Italy's, China now has the second-largest economy in the world. China also has more extensive economic relationships with nations around the world, providing it with the economic clout to coerce the trading partners to remain neutral, or even support it, in any future conflict with the United States.

Finally, the productive capacity of China is vastly bigger than that of Russia or even the United States. As the past three years have shown, China has demonstrated the capacity and willingness to increase the trade of dual-use items with Russia, enhance its trade in energy products[132] and, along with North Korea, build the foundations for a 21st century 'Arsenal of Authoritarians'. The key difference between Ukraine and the Pacific in this construct is that Russia has already mobilised its industrial base and China has not. Should China choose to mobilise its already impressive research, development and manufacturing capability, it would pose a more formidable industrial alliance among authoritarian powers than that which currently exists.

- **The Adaptation War.** It is unlikely that China will start its learning and adaptation as slowly in a conflict as Russia did in 2022. The Chinese have been active learners of modern war since the Falklands conflict, and much of their ongoing military transformation stems from their observations of the 1991 Gulf War.[133] As Charles Hooper has described:

> the PLA are careful and meticulous students of modern warfare, particularly the U.S. way of war. They are voracious consumers of publicly available information, as well as all of the information that their very aggressive intelligence efforts provide them.[134]

China has an evolved capacity to study and learn from other people's wars. Partially this is due to necessity; China has not been involved in large-scale war since its disastrous invasion of Vietnam in 1979. The poor performance of the PLA in that war saw Chinese leader Deng Xiaoping use it to overcome resistance from PLA leadership to the modernisation of China's military. But China has subsequently used its studies of other people's wars to inform change in the PLA. The most recent conventional war in Ukraine, like the other wars China has studied, provides an array of lessons. One lesson that has been reinforced for the Chinese military is the requirement for greater integration of the air, land, sea, rocket, space and information activities. The development of joint theatre commands and the refinement of the command relationships for the PLA Rocket Force and its space, information and cyber activities is representative of their learning in this area.[135]

But Ukraine is just another data point for China's learning efforts. Many of its ongoing military transformation programs commenced well before 2022. While Ukraine provides some lessons for China, it also provides evidence that reinforces the rationale for ongoing programs. Over multiple decades the Chinese have developed a learning and adaptation culture that has seen them practice this capability long before any conflict. This culture will stand them in good stead in any war, and it is likely that the pace of adaptation, which has become rapid in the past three and a half years in Ukraine, will accelerate much more quickly in the Pacific theatre.

- **Surprise.** Technological breakthroughs is one area in which China in the Pacific may have a greater capacity for surprise than Russia in Ukraine. China has a much broader and more sophisticated research and development capacity than Russia (or any other authoritarian nation in the world) and it will leverage this in the lead-up to, and during, any conflict in the Pacific.

There is also potential for political surprise in the Pacific. In the event of a failure of any Chinese campaign to seize Taiwan, a change in the leadership of the CCP might take place. This could lead to a temporary disruption in understanding of China's national security objectives. Such a situation would increase the room for miscalculation in the relationships between China and other nations in the Pacific.

- **Leadership.** The PLA is focusing on personnel reform of its non-commissioned officers (NCOs), who are expected to be the PLA's 'backbone' in future wars. Xi approved and issued a new series of regulations in July 2022 on the management of PLA soldiers to improve recruiting, training, promotions, benefits, and demobilisation efforts for NCOs. Self-assessed personnel weaknesses in the Chinese system include command and leadership; combat experience; fighting and winning modern wars; and professional military education.[136]

Learning the Right Lessons from Ukraine

This section of the report has explored how lessons derived from the war in Ukraine might be analysed for their utility in different theatres around the world. While the particular focus has been the Pacific theatre, this examination has shown how various analytical 'filters' might be applied to ensure the right lessons are learned from Ukraine for use by countries and military institutions in different regions of the world. The level of filtering in subsequent analytical products could be more specific than that undertaken here. This might include translating Ukraine lessons to ensure their applicability for specific services in individual countries.

III. What Is to Be Done?

Optimising Ukraine Lessons for the Pacific

This paper commenced with an exploration of the key lessons from the war in Ukraine. An important caveat is that these lessons have been developed using open-source material only. It should also be highlighted that while the war continues, these lessons will evolve, new ones will emerge and the relative importance of each will potentially change. The pace of change in the security environment is such that no military institution or government can wait years to ascertain the final and best-evidenced lessons from this war. They must act with alacrity and good judgement to discover insights that are relevant now.

The second section of this paper conducted a translation exercise, applying a series of filters that enable identification of the most relevant insights from Ukraine for military and national security affairs in the Pacific theatre. As that section finds, some lessons from Ukraine have direct relevance to the Pacific and might be applied with little or no modification. Other lessons might, however, require substantial analysis and further development for their application in the Pacific. The final question is this: what is to be done?

The authoritarian learning and adaptation community is sharing political, strategic and battlefield lessons. In doing so, it is driving an adaptation war to which Western nations must urgently respond. This report therefore proposes five actions that require immediate attention. These actions will assist nations that compete, and may fight, against China, North Korea and Russia in the Pacific to develop better strategic deterrence capabilities and improved national warfighting capabilities.

Recommendation 1: Humility—accept we can learn from others.
Senior political and military leaders must appreciate the breadth of learning available from the war in Ukraine—from the political to tactical levels. These lessons, which include political, military, economic and cognitive warfare lessons, provide a start point for learning about modern war. At the same time, while political and military leaders need to exercise a degree of humility in being open to the lessons from Ukraine, there must also be an

appreciation that not all Ukraine lessons may be applicable to the Pacific theatre. The insights gained from the Ukraine War, and the trends in war made apparent by the last three and half years of war in eastern Europe, should not be viewed as the future of war. Rather, these are lessons that will shape many elements of future conflict. Every war has a different context and therefore not every lesson from Ukraine will be directly applicable, or applicable at all, in the Pacific theatre. That said, the vast majority of lessons reviewed by the author in the past three and a half years retain some level of relevance for military institutions and governments in the Pacific theatre.

Recommendation 2: Learn how Ukraine and Russia are learning. The insights from the war in Ukraine do not just provide insight into the solutions to existing problems in the Pacific. The war provides insight into how to develop problem-solving mechanisms, or how to 'learn to learn' and adapt better. Governments and military organisations across the Pacific must invest in learning how Ukrainian and Russian military organisations are learning. Learning how to learn is an important institutional function because it unearths new knowledge about the most effective processes and cultures for contemporary learning and adaptation. The past three years of war offer crucial insights into how Western military institutions might enhance their capacity to learn and adapt at the individual and institutional levels. Lessons about learning and adaptation must also include how Ukrainian and Russian defence industries are evolving.

Recommendation 3: Different services, nations and alliances will need to build their own translation filters for Ukraine lessons. The applicability of lessons from Ukraine will vary according to the strategic outlook, geography, resources and politics of each nation that undertakes an examination of such lessons. The filters required to assess the applicability of lessons for each nation will probably align closely with those proposed in Section II of this paper—noting that regions beyond the Pacific will also require this analysis. However, the implications of these filters for each military service, nation and alliance may differ remarkably.

Recommendation 4: Understand the differences between the three forms of military adaptation: peacetime, transition to war, and war adaptation. It is important to understand the differences in the various contexts for military adaptation because Ukrainian adaptation is occurring in war. Pacific adaptation, if it occurs now, will be occurring in peacetime, Peacetime adaptation is more resource constrained than other forms of

adaptation, affords more time for experimentation and analysis, and often faces greater bureaucratic obstacles. Wartime adaptation has an existential imperative and generally proceeds at a faster pace. However, the breadth of events that occur in a war can vastly outstrip those in peacetime, and this means leaders need to pay even more attention to learning and adaptation as part of their expanded wartime responsibilities.

Finally, the transition from peace to war is a different form of adaptation again. It is a shorter process, primarily cognitive, and involves a massive change in mindset overnight. As Meir Finkel writes in *Military Agility*:

> A successful transition depends on many variables that are usually covered by the term readiness, [but] to conduct a successful transition from peace to war, other 'softer' aspects of readiness, such as cognitive and mental flexibility, must be addressed.[137]

Each type of adaptation must be understood as a distinct entity and each requires subtly different institutional settings and leadership philosophies.

Recommendation 5: Political and military leaders must take strategic and operational risks and embed adaptation in institutional culture. In their book The Culture of Military Organisations, Williamson Murray and Peter Mansoor note that:

> even when militaries are willing to experiment … their cultural biases often prevent wholesale changes. Yet some military organisations do change, assisted by cultures that embrace innovation and a reasonable degree of risk-taking.[138]

The most senior leaders in government and military institutions need to nurture cultures in institutions that incentivise people and teams to observe the lessons from other wars, including Ukraine, take risk, actively learn and be capable of changing quickly. This culture is enabled by clear statements about the leadership's tolerance for risk and new ideas. Leaders must clearly define and disseminate widely how lessons are to be observed, collected and shared about the combat and non-combat aspects of military affairs.

Recommendation 6: Adopt 'problem-centric' rather than 'trend-based' adaptation. There are many lessons from the war in Ukraine. These lessons, however, are not a template for all conflicts elsewhere in the future. As the filters in the previous section of this report demonstrate, a range of factors

can impact on the application of insights from Ukraine in other countries in different parts of the world. What the application of the lessons from Ukraine in the Pacific does indicate is that there are a range of operational problems that arise from the technologies used in Ukraine potentially being employed in the Pacific. These operational problems, likely to occur in the Pacific, have already been evident during the war in Ukraine. While each of these problems is distinct, in many instances there will be relationships between them as well. For example, solutions to Problem 1 will have an impact on solutions to all other operational problems. The key operational problems in the Pacific theatre are likely to include the following:

- **Problem 1: Degrade enemy battlespace awareness.** If something can be seen, it can be killed. Once an aspirational goal for military organisations, this is now a military truism. Degrading the capacity of adversaries to find and fix the locations of military forces in the land, air and maritime domains, and of their headquarters and support networks, is vital to modern military operations. It is likely that achieving this will require human and technological interventions. Human interventions, such as distributed operations, advanced counter-reconnaissance operations and enhanced deception and counter-deception activities, will be required. Technological interventions, such as counter-space capabilities, massed use of uncrewed systems to saturate enemy sensor networks and advanced EW are among the potential capabilities needed.

- **Problem 2: Restore offensive manoeuvre.** Military organisations need to be able to assemble and then close with an adversary in a way that preserves a significant proportion of their combat power. Lawrence Freedman recently described how 'the problem is not that the Ukrainians are unable to mount a decent offensive while the Russians can, but that both sides find offensives difficult. The defence is stronger'.[139] Modern combat forces require new methods which are quicker, lower signature and more survivable at crossing the tactical spaces between them and their objectives. This challenge of closing the distance between friendly forces and an adversary is an operational and strategic problem as well. Allied forces in the Pacific and the Atlantic must cross broad swathes of ocean in a survivable manner to be able to engage the enemy. New concepts, technologies and organisational

constructs are needed to achieve this. The key problem is 'crossing denied spaces under constant surveillance without being destroyed in detail'.

- **Problem 3: Lower the cost of defending against missiles and drones.** This is a fundamental contemporary challenge for deployed military forces and a national problem to protect critical infrastructure and important military and logistics facilities. While enormous investment has been made over the past couple of decades in developing remotely controlled, autonomous and semi-autonomous uncrewed systems, the capabilities to counter them have—at least initially—lagged in investment. This situation has changed since the beginning of the Russo-Ukrainian war, but there remains a gap between the capabilities of uncrewed systems and those that counter them.
- **Problem 4: Address the massing versus dispersion predicament.** The meshing of commercial and military sensors has resulted in an environment where the signatures of military equipment, personnel and national infrastructure can be detected more accurately and rapidly. When linked to precision drones and munitions, contemporary military forces and critical infrastructure have become more vulnerable to attack. Massing military forces in any domain has become high risk. And, even if an array of hard and soft kill measures is available to protect forces when they mass for decision events, they are almost assured of detection, which makes achieving surprise difficult.
- **Problem 5: Penetration of enemy-held areas and homelands.** Successful long-range strike is reliant upon the penetration of enemy air and missile defence capability areas to collect target-quality data and support the conduct of strikes and post-strike analysis. However, this penetration challenge relates to more than long-range strike. The collection of human intelligence and the conduct of subversion and sabotage against authoritarian nations will also demand the capability for covert or clandestine forces to penetrate foreign nations on the way to their targets. A combination of human and technological solutions is required given the array of internal surveillance and security systems that are now almost ubiquitous in countries like China, Russia and North Korea.

- **Problem 6: Deploy survivable logistics.** Even if all the preceding challenges are resolved, it will be for naught if there is no effective method of sustaining military operations from the tactical through to the strategic levels. Unfortunately, military logistics and sustainment units, depots and networks are some of the most visible elements on the battlefield and in a theatre more broadly.

Recommendation 7: Prioritise assessment and absorption of lessons from Ukraine. Addressing the problems described above, and translating the lessons of Ukraine for the Pacific, will require the rapid absorption of new technologies, ideas and organisations. In The Diffusion of Military Power, Michael Horowitz describes the challenges of absorbing new technology and ideas into military institutions, and notes that military (and other) institutions only possess so much capacity to absorb change.[140] Therefore, military institutions must prioritise the assessment and application of the lessons from Ukraine that provide the greatest potential to generate the largest military advantage if they are resourced.

Conclusion: Absorbing the Right Lessons from Ukraine for the Pacific Theatre

The aim of this paper has been to ascertain key lessons from the war in Ukraine, to translate those lessons so they are relevant in the Pacific and to provide recommendations for action by governments and military institutions. These organisations must learn from Ukraine to help solve compelling military problems in the Pacific. Among other actions, this will require the speedy absorption of new technologies, ideas and organisations.

The growing dialogue and collaboration between China, Russia, North Korea and Iran provides a significant challenge for nations in the Pacific, and for implementation of relevant lessons from the war in Ukraine. The new authoritarian learning and adaptation bloc is likely to intensify its activities in the coming years. This will complicate the learning and adaptation of nations in the Pacific in security, diplomatic, informational, and economic affairs. This new adaptation war, which extends from the battlefields of Ukraine through to the global security environment, will be a critical determinant of defence, economic and security affairs in the Pacific for some time to come.

Individual nations must examine the military, civil defence, national resilience, civil-military affairs, industrial, strategy and alliance dimensions of the lessons from Ukraine. The approach taken in this paper has been to conduct a general review of lessons from the war in Ukraine and their applicability to the Pacific theatre. However, every nation that is part of this theatre or expects to operate within it must review Ukraine lessons through its own 'translation filters', which might include military and national culture, geography and resources available.

Ultimately, the rapid absorption of Ukraine lessons that are relevant to the Pacific will demand good leadership to succeed. Leaders at all levels must be open to new insights, nurture creative solutions and build cultures that encourage learning and rapid adaptation. This will be the essential translation tool to ensure the learning opportunities from over three years of war in Ukraine are not squandered by political and military leaders across the Pacific.

About the Author

Mick Ryan spent 35 years in the Australian Army and commanded at troop, squadron, regiment, task force and brigade levels. He served in East Timor, Iraq and Afghanistan. Mick has published three books since 2022: *War Transformed* (2022), *White Sun War: The Campaign for Taiwan* (2023), *and The War for Ukraine: Strategy and Adaptation Under Fire* (2024). Mick is a strategic advisor to several companies, including US drone company Skydio, the Washington DC based Special Competitive Studies Project, Australia's Beaten Zone defence venture capital company, the Useful Fiction company, and the UK-based Janes.

Mick is the inaugural Senior Fellow for Military Studies at the Lowy Institute in Sydney, and an adjunct fellow at the Center for Strategic and International Studies in Washington DC.

Endnotes

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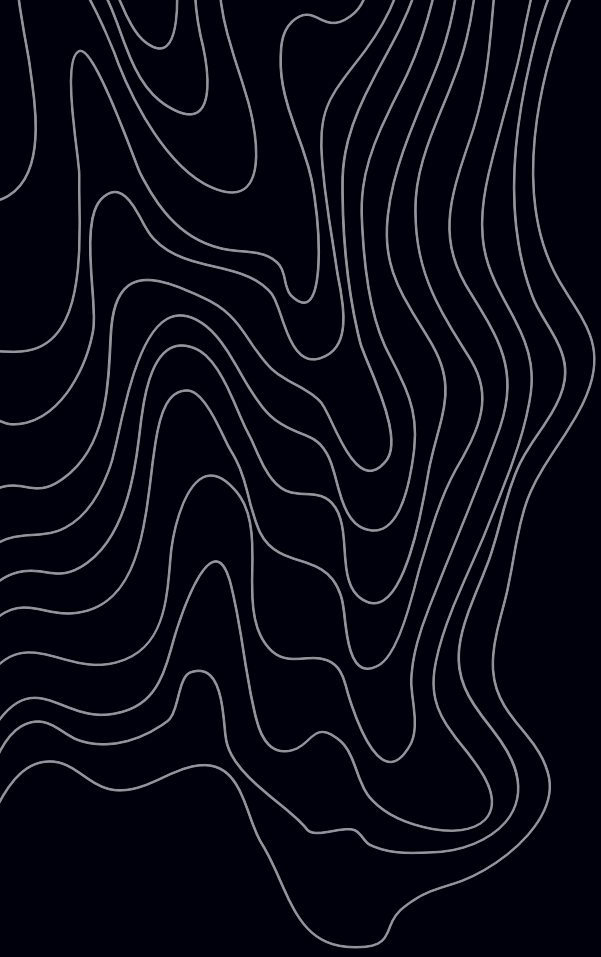

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