

COUNTERING ANTI-ACCESS/ AREA DENIAL CHALLENGES STRATEGIES AND CAPABILITIES

Event Report
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RSiS
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SCHOOL OF
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**NANYANG
TECHNOLOGICAL
UNIVERSITY**
SINGAPORE

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Four Points by Sheraton Singapore, Riverview

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Introduction

Israel and Singapore, on the surface, share many characteristics when it comes to security and defence. Both are small countries with relatively small populations and no strategic depth, ostensibly surrounded by a metaphorical sea of adversaries or potentially hostile neighbours. Both rely heavily upon sizable conscript armies, drawn from (more or less) universal national service and long reservist obligations. Both have military expenditures that are relatively high for countries their size, and their armed forces — air, sea, ground, and other — are generally equipped with the most advanced weaponry that is readily available (and kept in a high state of readiness).

Moreover, both Israel and Singapore place a great deal of importance on advanced military technologies for national defence. In both countries, technology is viewed to be a critical force multiplier when it comes to national security and defence, and the idea of leveraging advanced military-technological capabilities as much as possible is an inarguable one. In conjunction with this approach, achieving a high degree of self-sufficiency in sophisticated armaments has long been a priority for both countries. As such, both countries have, by design, created and nurtured a clutch of indigenous defence industries, with the intention of meeting — as much as it is financially and technological feasible — national requirements for the acquisition of advanced weapons systems and other types of military equipment.

Increasingly, both countries face a growing security challenge from anti-access/area denial (A2/AD) strategies being undertaken by regional rivals or competitors. These emerging A2/AD strategies threaten to undermine Singaporean and Israeli defence capabilities, and therefore their ability to deter or defend against threats to their territories.

To address the issue and challenges of A2/AD, the Military Transformations Programme within the Institute of Defence and Studies at RSIS, in cooperation with the Haifa Research Centre for Maritime Policy & Strategy, held a one-day workshop on 1 December 2017 in Singapore on “Countering Anti-Access/Area Denial Challenges: Strategies and Capabilities.” The workshop brought together specialists in A2/AD and maritime security to discuss present and future potential challenges of A2/AD strategies, and how these might affect maritime security in regions near to both Singapore and Israel (e.g., in the South China Sea, and the East Mediterranean Sea and the Red Sea). Three representatives from the Haifa Research Centre for Maritime Policy and Strategy (HMS) attended,

and the workshop was also attended by several officers from the Ministry of Defence, Singapore (MINDEF), and the Republic of Singapore Navy.

Issues addressed at this workshop included: (i) broad conceptual definitions and implications of A2/AD; (ii) current and future potential technologies and capabilities for A2/AD; (iii) the impact of such technologies on regional maritime security doctrines and defence strategies for both Singapore and Israel (e.g., in the South China Sea, or in the East Mediterranean and Red Sea); and (iv) the ways in which Singapore and Israel might leverage A2/AD strategies and capabilities for their own benefit.

Chinese A2/AD Capabilities and the US Third Offset Strategy

Mr Richard A. Bitzinger

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The “Third Offset” strategy, like many initiatives that have recently come out of the Pentagon, is long on ambition and short on details.¹ Regarding the Asia Pacific, it would probably be used mostly to deal with the anti-access/area denial (A2/AD) conundrum posed by China. In fact, the Third Offset strategy is at least implicitly first and foremost about countering China’s supposedly growing abilities to “no-go” sanctuaries in the far western Pacific Ocean, and particularly in and around the East and South China Seas. In this sense, therefore, the Third Offset is about creating the enabling technologies behind AirSea Battle (ASB), now known as the Joint Concept for Access and Maneuver in the Global Commons (JAM-CG).

The Third Offset strategy is about leveraging US advantages in new and emerging critical technology areas in order to overcome weakening US advantages in more “traditional” areas of conventional military power. In the present situation, this is about the United States losing its “near-monopoly” in “reconnaissance-precision strike,” as potential adversaries are now “fielding their own reconnaissance-strike networks to challenge” US power projection capabilities.² According to analysts, including Robert Martinage and Peter Dombrowski, the US military is increasingly vulnerable to long-range strike, modern integrated air-defence systems, more capable underwater systems, and attacks in the space and cyber domains.³ Consequently, the Third Offset strategy is both about capabilities (such as “resilient basing,” the “suppression/destruction of enemy air defences,” “increased space resiliency,” etc.) and specific enabling technologies, such as “robotics, autonomous systems, miniaturisation, big data, and advanced manufacturing, including 3-D printing.”⁴ Other technologies or specific weapons systems include hypersonic, directed-energy weapons, electromagnetic rail guns, a new long-range bomber, and naval mines.⁵

¹ Bitzinger, Richard A. *Third Offset Strategy and Chinese A2/AD Capabilities*. Washington, DC: Centre for a New American Security, 2016.

² Martinage, Robert. *Toward a New Offset Strategy: Exploiting US Long-Term Advantages to Restore US Global Power Project Capability*. Washington, DC: Center for Strategic and Budgetary Assessments, 2014.

³ Dombrowski, Peter. “America’s Third Offset Strategy: New Military Technologies and Implications for the Asia Pacific.” *RSIS Policy Report* (2015): 5-6.

⁴ Dombrowski, *America’s Third Offset Strategy*, 5-6.

⁵ Martinage, *Toward a New Offset Strategy*, vi-vii.

As the US military begins to address the challenges and opportunities created by Third Offset technologies and strategies, one of the most critical areas where these ideas will be tested is with China and its growing capacities for anti-access/area denial (A2/AD). Anti-access (A2) strategies aim to prevent US forces from operating from fixed land bases in a theatre of operations, while “area denial (AD) operations aim to prevent the freedom of action of maritime forces operating in the theatre.”⁶ As such, China is trying to gain the means to prevent US forces (and, by extension, its regional allies and partners) from entering or operating with impunity within these seas, while the United States, of course, is endeavouring to counter such capabilities.

Chinese Strategic Advantages in the Far Western Pacific

China possesses several strategic advantages when it comes to A2/AD capabilities. First and foremost, it has the “homefield advantage” of being able to engage in military operations quite close to its national territory. Most of its forces that could be employed for A2/AD operations are already pre-positioned on or near the Chinese coast and are therefore more rapidly deployable to likely conflict zones in the East and South China Seas. These forces are being reinforced by military build-ups on Chinese-held islands in the regional seas — such as the heavily militarised Woody Island in the Paracel Island chain — and by the recent construction of artificial islands in the Spratlys, at least one of which (Fiery Cross) possesses a 3,000-metre airstrip (additional runways are being constructed on at least two, and possibly three, other islands); these islands greatly extend the People’s Liberation Army’s (PLA) theoretical range of operations around the South China Sea. At the same time, the PLA can, if needed, move men and equipment more easily from the hinterlands closer to coastal areas. In addition, land-based forces, such as combat aircraft and missiles, can be protected by homeland defences, such as increasingly sophisticated integrated air defence systems.

Secondly, the PLA has, over the past 15 years, acquired considerable hardware that boosts its A2/AD capabilities. The People’s Liberation Army Navy, People’s Liberation Army Air Force, and People’s Liberation Army Second Artillery Corp, which controls China’s missile forces, have particularly benefitted from this build-up. Area sea denial capabilities have been greatly improved by the acquisition of new submarines, including five new nuclear-powered attack submarines and nearly three dozen modern diesel-electric submarines (some of which are reportedly outfitted with systems for air-

⁶ Krepinevich, Andrew F. *Why AirSea Battle?* Washington, DC: Center for Strategic and Budgetary Assessments, 2010.

independent propulsion). A variety of anti-ship cruise missiles (ASCM) and the unique DF-21D anti-ship ballistic missile (ASBM), along with modern sea mines, have also added to China's A2/AD capacities in the far western Pacific. China's recent acquisition of several hundred fourth and fourth-plus generation combat aircraft, as well as the aggressive expansion of the PLA's arsenal of short-, medium-, and intermediate-range ballistic missiles and land-attack cruise missiles (LACM), have endowed the Chinese military with new and improved capabilities for long-range, precision strike. These capabilities put the US, and allied bases in and around the far western Pacific, including Guam, Okinawa, and Taiwan, under new threats. China's air defence systems have also been greatly improved and expanded in recent years, with the procurement of S-300 (and soon, S-400) surface-to-air missile systems; the PLA is acquiring a ballistic missile defence capacity.

All these hardware developments are being backed up by improvements in the People's Liberation Army's Command Control Communication Computer and Intelligence Surveillance Reconnaissance (C4ISR) infrastructure and other advances in military "software." These include satellites for communications, reconnaissance, navigation, unmanned aerial vehicles for surveillance and attack, secure communications and datalinks, and an increasingly digitised command and control system. In particular, China is working hard to improve its offensive and defensive cyber capabilities, including computer network attacks, electronic warfare, and setting up "information blockades" of its computer networks. According to the US Defense Department's latest report on Chinese military power, "Chinese offensive cyberspace operations could support A2/AD by targeting critical nodes to disrupt adversary networks throughout the region. PLA researchers advocate the key to seizing "cyberspace superiority" is to deter or stop an adversary by developing and employing offensive cyberspace capabilities."⁷ Finally, China is increasingly keen on the military use of space, particularly the employment of anti-satellite (ASAT) systems to destroy enemy satellites.

US Disadvantages in the Far Western Pacific

Correspondingly, the US military faces a number of disadvantages when it comes to projecting power into the far western Pacific. In the first place, it continues to suffer from the centuries-old challenge of the "tyranny of distance." It can take up to three weeks for US naval forces to steam from ports on the west coast to the South China Sea; forces based in Hawaii

⁷ US Department of Defense. *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2015*. Washington DC: Office of the Secretary of Defense, 2015.

could take up to 16 days to reach this area. Even Guam — one of the United States' most westerly territories and the site of a considerable build-up of US military forces (including B-1, B-2, and B-52 bombers, nuclear-powered attack submarines, nearly 5,000 US Marines, and possibly an aircraft carrier) — is still 1,700 miles from the South China Sea, a three to five-day journey away.⁸

Moreover, most of the United States' Asian allies are situated in the wrong places to be of much use in the event of a South China Sea crisis. US naval forces in Yokosuka, Japan, are 1,700 miles away, while Okinawa lies 1,000 miles or a two to three days' journey off.⁹ Until quite recently, the United States did not have reliable base access to the Philippines, but in 2014 Washington and Manila signed a new Enhanced Defense Cooperation Agreement that allows US troops to rotate into the Philippines for extended periods and for the United States to build and operate military facilities on Philippine bases. Thailand, on the other hand, is geographically removed, and probably too politically close to China. The United States also has limited access to air and naval bases in Singapore, including a significant logistics facility, but in the absence of an official alliance agreement, Singapore cannot be counted on in a crisis to be a secure forward operating base for US forces.

Finally, it is uncertain how allies and partners would factor into any Third Offset strategy. Any US-Chinese crisis or clash would almost certainly drag some or all of the United States' Asian-Pacific friends and allies into the fray. South Korea, Japan, Australia and other US partners in the region have already been relatively quiet when it comes to ASB/JAM-CG — in part because they do not possess the full extent of the planned operational details inherent in JAM-CG (which remain classified, in any case), and in part because such a doctrine, which potentially entails “deep-strike” missions targeting China, could lead to escalatory situations over which they would have no control. Would the Third Offset strategy create similar strategic worries for regional allies?

The Third Offset Strategy: The Way Forward

Should the US military decide to aggressively pursue a Third Offset strategy in order to deal with a Chinese A2/AD contingency, it will likely have to do so alone, at least for the next several years, if not decades. Only the United States has the strategic requirements, particularly the long lines

⁸ The Heritage Foundation. “2015 Index of Military Strength: Asia.” <http://index.heritage.org/military/2015/chapter/op-environment/asia>

⁹ The Heritage Foundation, *2015 Index of Military Strength: Asia*.

of communication stretching from the US west coast, the resources, and sufficiently advanced technological capacities, to engage in this type of approach.

In this light, what are the prospects that a Third Offset strategy will overcome China's A2/AD in the far western Pacific Ocean, especially South China Sea? Again, to cite Martinage, the United States' "core competencies" in the area of Third Offset technologies are "unmanned systems and automation, extended-range and low-observable air operations, undersea warfare, and complex system engineering and integration in order to project power differently."¹⁰ Therefore, in the first place, it is permissible to ask how this might be different from recent strategies, such as Rumsfeld's Force Transformation efforts or ASB. Perhaps there is a bit more emphasis on robotics and automation, directed-energy weapons, and extra-long precision-strike — e.g., through the employment of hypersonic vehicles or conventionally armed ballistic missiles (Conventional Prompt Global Strike) — but many of these initiatives were already underway long before the Third Offset was enunciated.¹¹ Cyber may be the next great battle space, but most of us already know that, and it is a certainty that the US military is elbow deep into the planning stages for operations in cyberspace — not the least because of the activation of US Cyber Command in 2010. Meanwhile, other technologies or capabilities often touted under the Third Offset umbrella — such as the Long-Range Strike Bomber (LRS-B), sea mines, networked expeditionary forces, etc. — are hardly new ideas. In other words, how much of the Third Offset strategy is simply a rebranding exercise, or a case of "new wine" in even newer bottles? Moreover, proponents of the third offset strategy do not help themselves by shrouding their case in such ambiguities as "game-changers," "global surveillance and strike networks," "deterrence by punishment," etc., without supplying details as to how these capabilities would be employed in specific scenarios or, in the case of the latter statement, how such deterrence-by-threat would be made credible.

Third Offset technologies may make the US military a more formidable force to rising challenges like China — especially when it comes to countering Chinese A2/AD efforts — and they may address some of the disadvantages that US forces face in attempting to project power into regions such as the South China Sea, but they do not in and of themselves overcome all of these shortcomings. The United States should certainly leverage its technological advantages to stay ahead of the pack, but it should not think that relying on these alone will compensate for a weakening conventional superiority.

¹⁰ Martinage, *Toward a New Offset Strategy*, v.

¹¹ Schreer, Benjamin. "US Conventional Prompt Strike: Potential Implications for the Asia Pacific." *RSIS Policy Brief* (2015).

Four Challenges, One Solution: Strategic Overview of the South China Sea and Surrounding Waters

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There are four major maritime security challenges in Southeast Asia. Each one is structural, chronic in nature. Three have no foreseeable political or military end solutions and hence are cases of management and mitigation, not potential resolution. Three involve the states of maritime Southeast Asia. In all three of these cases, the coast guard (or its equivalents) are likely more relevant than navies. The South China Sea is the arena for the two most important challenges. The Sulu and Celebes Seas is the arena for the other two challenges. The final and least threatening challenge that only involves Southeast Asian states does hold the promise of a repeatable political solution.

China is a major player in two of these challenges with differing interests from the maritime Southeast Asian states in each. The United States is a major player in only one of these challenges and the key supporting player in another. No other countries are major players in any of these four challenges. The one not involving Southeast Asian states as major players is the most dangerous.

These four challenges will each be looked at in more detail in the order of their strategic significance and risk of escalation into actual conflict:

China-US Nuclear Deterrence

- *Key countries: China, The United States*
- *Key sites: Hainan Island, Luzon Strait, Malacca Straits, Sunda Strait*
- *Secondary players: Japan, India, Australia, Singapore, The Philippines, Taiwan, Indonesia*
- *Risk of escalation: Low but impact would be very high*

The location of China's nuclear-armed submarines at Hainan Island have turned the South China Sea and its main passage to the Western Pacific (the Luzon Strait between the Philippines and Taiwan) and to the Indian Ocean (Malacca Straits and the Sunda Strait between Sumatra and Java) into the main maritime arena of China-US rivalry and a main arena for US naval exercises with Japan, India, and Australia. Chinese nuclear-powered ballistic missile submarines (SSBNs) need to access the Western Pacific to pose a credible first or second-strike threat to US mainland. The

Indian Ocean could provide a safer haven for these Chinese SSBNs to hide in during periods of heightened tensions or conflict with the United States.

These Chinese SSBNs complete China's nuclear triad and pose a first-order threat to the United States. China appears to have adopted a bastion strategy in the South China Sea using A2/AD capabilities. China's actions against US' ISR operations around Hainan Island, the capturing of Scarborough Shoal from the Philippines in 2012, and the rapid development for military of the seven artificial islands in the southern Spratlys are all consistent with this bastion strategy and the raising of the costs and complexity of any US operations in the area. This is likely the primary driver of Chinese artificial island-building in the Spratlys and intransigent position on China's excessive maritime rights claims in the South China Sea.

The United States' responses to this threat include heightened US naval, air and submarine activity in the South China Sea, and around the Luzon Strait and Malacca Straits; the increase tempo of US Freedom of Navigation Operations; USP-8 flights from Singapore and Malaysia; the US-Philippine Enhanced Defense Cooperation Agreement; and the 2016 US-Japan-India anti-submarine exercises in the Philippine Sea. This could potentially lead to closer US-Taiwan military relations as well. Closer cooperation with the Philippines and Taiwan is key for the United States to succeed in relation to the Luzon Strait, with Singapore and India for the Malacca Straits, and with Indonesia and India for the Sunda Strait. India's naval facilities and capabilities at Port Blair are important for tracking and preventing Chinese SSBNs from accessing the Indian Ocean. Japan and Australia are both enhancing their submarine and anti-submarine warfare capabilities.

The next generation of Chinese submarine-launched ballistic missiles may be able to hit the US mainland from the South China Sea itself which will deepen China's interest in a bastion strategy in these waters and the US interests in overriding this bastion strategy.

China-Southeast Asian Maritime Rights Disputes in the South China Sea

- *Key countries: China, Vietnam, The Philippines, Malaysia, Indonesia, Brunei*
- *Key sites: Paracels, Chinese artificial islands, Scarborough Shoal, Reed Bank*

- *Secondary players: ASEAN, Singapore, The United States, Japan, Australia, India, Taiwan*
- *Risk of escalation: Minimal, higher for China-Vietnam*

Many analysts conflate this challenge with the one above but they are distinct from each other with minimal overlap except on the Chinese side.

This is a set of disputes between China and five Southeast Asian states. Between China and Vietnam, it is primarily a territorial dispute centred on the Paracel Islands and the Vietnamese continental shelf. Between China and the Philippines, Malaysia, Indonesia, and Brunei Darussalam, it is primarily a set of maritime rights disputes, but for China with the Philippines and Malaysia, disputes occur over rocks as well. Vietnam has taken the firmest and most consistent policy against China's excessive claims, the Philippines has flip-flopped, Indonesia has a firm and consistent policy undermined by inter-agency confusion, Malaysia has adopted a soft approach and Brunei has not clarified its own claims and their overlap with China.

In the Spratlys, in relation to the Philippines and Malaysia, China has *de facto* sea control aided by the development of the seven artificial islands. Both Malaysia and the Philippines have reduced or stopped naval and air patrols in waters claimed by China. The Philippines, Malaysia, and Indonesia are not adopting A2/AD asymmetrical strategies to complicate Chinese sea control. Brunei Darussalam is too small and weak to consider this strategy. The Philippines, Indonesia, and Malaysia are inhibited by army-dominated armed forces, modest to meagre acquisition budgets, corrupt and ineffective procurement practices, and an overriding desire to have positive economic and diplomatic relations with China.

Vietnam is the only Southeast Asian state with a recognisable A2/AD strategy targeting China and focussed on the Paracel Islands. China's very significant advantage in number and size of vessels, its use of swarm tactics and non-grey hull combatants, and its ability to impose costs on Vietnam across a range of pressure points all work against the effectiveness of any Vietnamese strategy to dissuade or deter China.

Terrorism and Piracy

- *Key countries: The Philippines, Indonesia, Malaysia*
- *Key sites: Basilan, Sulu, mainland Mindanao*
- *Secondary players: The United States, Australia, Singapore*
- *Risk of escalation: Indeterminate*

This year saw the first ever trilateral coordinated maritime and air patrols conducted by the Philippines, Indonesia, and Malaysia in the Sulu Sea in response to the terrorist capture of Marawi City and the flow of regional terrorists from Indonesia and Malaysia (and further afield) across the Sulu Sea to Marawi City. The political and legal basis for these patrols was agreed to earlier as a joint response to the hijacking and kidnapping of Malaysian and Indonesian vessels for ransom by the Sulu wing of the Abu Sayyaf Group in Muslim Mindanao. Through particularly the Abu Sayyaf Group, terrorist operations in Mindanao (and Sipadan, Malaysia) are fused with hijacking and kidnapping for ransom, which is turned into an attractive business model.

The Marawi City siege has seriously weakened the Maute Group and the Basilan wing of the Abu Sayyaf Group but there are a growing number of other local terrorist groups in Muslim Mindanao with links or the potential to establish links with Southeast Asian groups and ISIS. The poverty and political alienation of Muslim Mindanao and the apparent stalling of the current peace process will extend and deepen the social, economic, and political conditions that have fostered these terrorist groups.

The Marawi City siege provided a new basis for trilateral cooperation between the Philippines, Indonesia, and Malaysia. Singapore has offered to join in some capacity as well and this has been looked on favourably. The Marawi City siege also deepened security cooperation between the Philippines and the United States, and the Philippines and Australia. Both the United States and Australia have provided vital ISR capabilities such as P3-Orions that no Southeast Asian state could. Operationally, the current trilateral maritime and air patrols are limited in effectiveness by the limited capabilities of all three Southeast Asian countries in the Sulu Sea area. Politically, the unresolved territorial dispute between the Philippines and Malaysia over Sabah precluded earlier cooperation and could become inflamed again. The Philippine government is planning to introduce a federal system which will likely put the Sabah claim back on the table.

Incorporating Singapore into the trilateral patrols and linking these patrols with US and Australian counter-terrorism programmes with the Philippines is key for enhancing their effectiveness.

Disputed Islands

- *Key countries: Indonesia, Malaysia, The Philippines*
- *Key sites: Ambalat Island, Sabah, Pedra Branca*
- *Secondary players: ASEAN, Singapore*
- *Risk of escalation: Minimal*

There are a number of maritime rights and territorial disputes between Southeast Asian states that limit the scope for security cooperation between the involved parties. They factor in these countries' defence planning and acquisitions, and have the possibility of becoming inflamed. The likelihood of escalation into a major diplomatic dispute or military conflict of any of these is minimal. The dispute over Ambalat Island between Indonesia and Malaysia has led to recent, episodic shows of force by both sides. Indonesia, after losing Sipadan and Ligitan Islands to Malaysia in a 2002 International Court of Justice ruling, is currently unreceptive to addressing this dispute through international legal means. The dispute between the Philippines and Malaysia over Sabah led to a short-lived quixotic invasion of more than 200 armed men claiming to represent the Sultan of Sulu in 2013. There is little chance that Malaysia and the Philippines will agree to address this dispute through international legal means. This year, Malaysia has filed for a review of the 2008 International Court of Justice judgment on Pedra Branca that ruled in favour of Singapore. There is no foreseeable way this territorial dispute would escalate beyond legal arguments. The Malaysia-Singapore approach to the dispute over Pedra Branca offers a legal solution to these Southeast Asian island disputes that could be used in other cases.

The Military Balance in Southeast Asia and A2/AD

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The concept of A2/AD began to gain traction in the second decade of the 21st century, especially in its application in analysing and understanding the growth of China's military capabilities. In particular, this concept was applied to examine the likely character of China's growing capacity to challenge the United States for strategic pre-eminence at least in the Asia Pacific region, if not globally.¹² Since then, the concept has begun to garner interest beyond the Sino-US dynamic; as a strategic concept, it is potentially applicable to different geopolitical and geostrategic inter-state dynamics.¹³

At face value, A2/AD is a concept that is potentially of great strategic value to Southeast Asia. Given the geopolitical conditions of the region — with so many of its member countries locked in an asymmetrical competition with the regional hegemon that is China over the South China Sea — A2/AD ought to be an appealing strategic concept. And yet, as this paper argues, A2/AD is a concept that may only now be gaining traction amongst the armed forces of the region, at least when viewed through the lens of the military capabilities that the region's armed forces have either already acquired or are in the process of acquiring.

This paper will begin with a brief discussion of the concept of A2/AD and its strategic value proposition to the countries of Southeast Asia. It then discusses the extent to which A2/AD is already framing the military balance in Southeast Asia. It will finally conclude that while A2/AD is a strategically attractive concept for Southeast Asia, the jury remains out as to whether or not A2/AD is beginning to have an influence on Southeast Asian military acquisitions and force posture decision-making.

¹² Cheng, Dean. "The U.S. Needs an Integrated Approach to Counter China's Anti-Access/Area Denial Strategy." *The Heritage Foundation*, July 9, 2014; Cowan, Christopher. "A2/AD – Anti-Access/Area Denial." *RealClearDefense*, September 12, 2016; Freier, Nathan. "The Emerging Anti-Access/Area Denial Challenge." *CSIS*, May 17, 2012; Kazianis, Harry. "Why China's Anti-Access Strategy Matters." *RealClearWorld*, October 14, 2012.

¹³ Fontaine, Richard. "Anti-Access/Area Denial Isn't Just for Asia Anymore." *Defense One*, April 2, 2015; Gomez, Eric. "Taiwan's Best Option for Deterring China? Anti-Access/Area Denial." *Cato Institute*, April 7, 2016; Weinberger, Kathleen. "Russian Anti-Access and Area Denial (A2AD) Range." *Institute for the Study of War*, August 29, 2016.

The Strategic Value Proposition of A2/AD in Southeast Asia

The concept of A2/AD has waxed and waned in terms of its ability to command academic and policy attention.¹⁴ It can be tempting to see the concept as merely another “Beltway” concept, not dissimilar to preceding concepts that have come and gone — think Ullman and Wade’s rapid dominance/shock-and-awe, for instance.¹⁵

Nevertheless, there may be some strategic merit to A2/AD. Biddle and Oelrich, for instance, argue that A2/AD can allow China to exercise at least some degree of control over the South China Sea in a military contest against the United States.¹⁶ Nevertheless, A2/AD does not provide for strategic success; rather, as the term implies, it seeks to deny an adversary the possibility of access to strategically significant geography, from which this adversary can then exercise its superior military power against the defender. In other words, A2/AD is an inherently defensive concept. Of course, this claim is inherently contestable. At a tactical level, defensive systems may be part of a broader combination with inherently offensive systems. For instance, a surface combatant deploying land-attack cruise missiles will need to manoeuvre to where it can deploy its cruise missiles against an adversary’s land targets; since this potentially places the surface combatant within range of the adversary’s defensive capabilities, the surface combatant will require at least short-range defensive capabilities to allow it to operate in otherwise contested spaces. Similarly, A2/AD technologies may be a shield to protect an otherwise revisionist state while it seeks to expand its geopolitical spaces. At a strategic level, however, A2/AD bears some similarities to otherwise-discredited concepts of non-offensive or non-provocative defence.¹⁷

Clearly, A2/AD is a concept that applies to weaker states in a competitive dynamic. This definitely describes the relations between China and a number of Southeast Asian countries, specifically those involved directly or indirectly in the territorial disputes in the South China Sea. In the case

¹⁴ Davis, Malcolm. “Towards China’s A2AD 2.0.” *ASPI The Strategist*, November 24, 2017; Farley, Robert. “A2/AD is Dead, Long Live A2/AD.” *The Diplomat*, October 11, 2016; Richardson, John. “Deconstructing A2AD.” *The National Interest*, October 3, 2016.

¹⁵ Ullman, Harlan and James Wade. *Shock and Awe: Achieving Rapid Dominance*. Washington DC: NDU, 1996.

¹⁶ Biddle, Stephen and Ivan Oelrich. “Future Warfare in the Western Pacific: Chinese Antiaccess/Area Denial, U.S. AirSea Battle, and Command of the Commons in East Asia.” *International Security* 41 (2016): 7-48.

¹⁷ Akavia, Gordon. “Defensive Defense and the Nature of Armed Conflict.” *Journal of Strategic Affairs* (1991): 27-48; and Møller, Bjorn and Håkan Wiberg (eds.). *Non-Offensive Defence for the Twenty-First Century* London and Boulder: Westview Press, 1994.

of China's alleged A2/AD capabilities, these will certainly be targeted against the United States, against whom China can only be considered at best as a near-peer competitor. However, in the geopolitical and geostrategic conditions of East Asia writ large, China is the dominant military power with Southeast Asian countries nowhere even close to being considered as near-peer competitors to China. That being said, A2/AD is a concept that has great potential applicability for the countries of this region, especially in their respective geopolitical relationships with China.

Can it be applied to intra-regional competitive dynamics? In terms of inter-state competitive relations with potential existential consequences, this becomes contested since it can be argued that with the exception of Singapore, no other Southeast Asian country perceives existential threats to its national security coming from within the region. Even the case of Singapore can be rendered problematic: while it is almost certainly true that its founding leadership genuinely perceived existential threats to Singapore, it may be harder to see such existential threats existing since the 1990s.¹⁸ Indeed, it is plausible to interpret Singapore's erstwhile strategic posture of the porcupine as correlating with A2/AD, in as much as the "spines" of the porcupine would constitute a capacity to deny a potential aggressor strategic space from which to threaten the existence of the porcupine.¹⁹

The Military Balance in Southeast Asia

However, while A2/AD is a concept that has potential application to the political and strategic geography of Southeast Asia, China, and the South China Sea, nevertheless, one finds at best a hint of A2/AD thinking when perusing the military balance of Southeast Asia (see Table 1). In other words, given the geostrategic and geopolitical conditions of Southeast

¹⁸ Loo, Bernard. "Goh Keng Swee and the Emergence of a Modern SAF: The Rearing of a Poisonous Shrimp." In *Goh Keng Swee: A Legacy of Public Service*, edited by Emrys Chew and Kwa Chong Guan, Singapore: World Scientific, 2012; Loo, Bernard, "Maturing the Singapore Armed Forces: from Poisonous Shrimp to Dolphin." In *Impressions of the Goh Chok Tong Years in Singapore*, edited by Bridget Welsh, James Chin, Mahizhnan, Arun and Tan Tarn How, 178-197. Singapore: National University of Singapore Press, 2009; and Vasu, Norman and Bernard Fook Weng Loo. "National Security and Singapore: An Assessment." In *Management of Success*, edited by Terence Chong, Singapore: Institute of Southeast Asian Studies, 2010. Desker, Barry and Ang Cheng Guan (eds.). *Perspectives on the Security of Singapore: The First 50 Years*. Singapore: World Scientific and Imperial College Press, 2015.

¹⁹ Loo, Bernard. "From Poisoned Shrimp to Porcupine to Dolphin: Cultural and Geographic Perspectives of the Evolution of Singapore's Strategic Posture", In *Asia in the New Millennium: APISA First Congress Proceedings, 27-30 November 2003*, edited by Amitav Acharya and Lee Lai To, 352-375. Singapore: Marshall Cavendish Academic, 2004.

Table 1
The Military Balance in Southeast Asia

Country	Weapons Systems		No.
Brunei	Corvettes	MM-40A	4
Indonesia	Submarine	533mm TT	2
	Frigate	RGM-84A, SS-N-26, MM-38, MM-40A, C-802	10
	Corvette	MM-38, MM-40A	6
	FTR	F-5E/F, F-16A/B	22
	FGA	F-16C/D, Su-27SK/SKM, Su-30MK/MK2	29
Malaysia	Submarine	SM-39	2
	Frigate	MM-40	10
	Corvette	MK 2, MM-38	12
	FTR	F-5E/F, MiG-29/UB	21
	FGA	F/A-18D, Su-30MKM	26
Myanmar	Frigate	DPRK KN-01, C-802	5
	Corvette	C-801, C-802	8
	FTR	F-7, MiG-29/SE/UB	88
	FGA	A-5M	22
Singapore	Submarine	533mm TT	4
	Frigate	RGM-84	6
	Corvette	RGM-84C	6
	FTR	F-5S/T	29
	FGA	F-16C/D, F-15SG	100
Thailand	Frigate	RGM-84A, RGM-84C, C-802	7
	Corvette	RGM-84A	2
	FTR	F-5B/E/F, F-16A/B	78
	FGA	<i>Gripen C/D</i>	12
Vietnam	Submarine	533mm TT, SS-N-27B, SS-N-30	5
	Frigate	SS-N-25	2
	Corvette	SS-N-25	1
	FGA	MiG-21L/N/UM, Su-22M3/M4/UM, Su-27SK/UBK, Su-30MK2	107

Source: *The Military Balance 2017*

Asia and the South China Sea, A2/AD capabilities ought to be more evident in the respective orders of battle of the armed forces of Southeast Asia.

That being said, there are signs that Southeast Asia's armed forces are waking up to the strategic possibilities afforded by A2/AD capabilities. Since 2010, as reported by the Stockholm International Peace Research Institute, Southeast Asian armed forces have been acquiring a number of relatively advanced capabilities in three domains: C4ISR systems that can be operated on both air and naval platforms; 4th generation air combat platforms and naval platforms with longer operating ranges than the legacy platforms they are replacing; and precision anti-shipping and anti-air strike capabilities.

Of the three domains, the weapons platforms — the combat aircraft and naval platforms — tend to garner the most attention. The introduction of relatively capable 4th generation combat aircraft such as Su-30s is eye-catching, but it is the simultaneous acquisition of modern C4ISR and precision-strike capabilities that truly turns such 4th generation combat aircraft into potentially significant military capabilities. Similarly, the domain of naval combat systems, where the acquisition of longer-range surface combatants integrated with similar C4ISR and long-range precision anti-shipping missiles, could potentially provide the otherwise relatively small navies of Southeast Asia with the potential capability to at least render any hostile Chinese naval activity in the South China Sea a significantly riskier proposition. And nowhere is the growing A2/AD capability of Southeast Asia more evident than in the recent especially eye-catching acquisition of new submarine capabilities. Singapore, Malaysia and Vietnam have acquired submarines capable of carrying both torpedoes as well as anti-shipping guided missiles. Finally, there is evidence that a number of Southeast Asian countries are either modernising or acquiring anti-submarine warfare (ASW) capabilities.

All three domains may, if integrated properly, provide these Southeast Asian countries with a fairly significant A2/AD capability against a regional hegemon such as China. That is a big IF. As Stephen Biddle persuasively argued, military power is more than the mere possession of modern combat platforms and weapons systems; it is rather the ability to integrate these platforms and weapons into a doctrinal system, underpinned by rigorous training, that turns otherwise chunks of metal into true military power.²⁰ There is no concrete evidence that Southeast Asia's military

²⁰ Biddle, Stephen. *Military Power: Explaining Victory and Defeat in Modern Battle*. Princeton: Princeton University Press, 2006.

organisations have strategic value, that they can win battles if not wars, that they are well-trained, and that they operate with doctrinal coherence. Rather, based on the evidence of the history of military acquisitions in the region, it is tempting to argue that most of the armed forces of the region seek the trappings of a modern military organisation without necessarily being able to operate as such. In other words, for at least some Southeast Asian armed forces, the ability to look good may be all that they aspire towards, no more and no less. Many of the acquisition programmes that individual Southeast Asian armed forces engage in may be driven less by strategic considerations and more by prestige considerations.²¹

Conclusion

Therefore, while A2/AD is a strategic concept that can have strategic utility in Southeast Asia, especially in terms of the territorial disputes in the South China Sea and in addressing an increasingly assertive and even aggressive China, there is no concrete evidence that the concept has driven military acquisitions in the region. The military balance simply does not provide conclusive evidence of the application of this concept. While there is some data that suggests a growing interest in A2/AD capabilities and postures, many of the on-going acquisition programmes in Southeast Asian armed forces remain too haphazard, apparently too fixated on replacing large-ticket weapons platforms.

²¹ Desmond Ball, "Arms and Affluence: Military Acquisitions in the Asia-Pacific Region", *International Security* 18 (1993-1994): 78-112.

Conceptualising the A2/AD Debate: Perspectives, Responses, and Challenges

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This paper attempts to provide brief contours of the on-going debate in strategic studies as well as defence policymakers concerning the varying political and military challenges of Anti-Access/Area Denial (A2/AD) strategies, capabilities, and technologies, particularly in the context of growing strategic competition in East Asia. While A2/AD concepts have been presented interchangeably as asymmetric defensive and offensive measures restricting military deployments into theatre (antiaccess), and denying the freedom of movement of forces already there (area denial)²², their potential actions and effects can be better conceptualised separately.²³ To begin with, anti-access measures (A2) can be “any actions by an opponent that has the effect of slowing the deployment of friendly forces into a theatre, preventing them from operating from certain locations within that theatre, or causing them to operate from distances farther from the locus of conflict that they would normally prefer.”²⁴ A2 challenges can be also projected in a spectrum of conflict, ranging from establishing political and economic exclusion zones that deny an opponent presence and political-economic influence, to military instruments of warfare that involve denial of basing, staging, transit, or over-flight rights. At the highest levels of conflict, A2 may involve the use of force, including attacks on airfields, seaports, and aircraft carriers by the use of long-range precision ballistic missiles, submarines, weapons of mass destruction, and offensive space and cyberspace operations. The strategic goal is to prevent additional forces from being deployed into the theatre, raise the potential costs of conflict, and in doing so, shape adversary’s strategic choices to prevent further escalation or intervention. A2 can therefore also be viewed as an asymmetric cost-imposing strategy to deter and defeat a technologically superior adversary.²⁵

²² Schreer, Benjamin. “Planning the Unthinkable War: AirSea Battle and its Implications for Australia.” *Australian Strategic Policy Institute Monograph* (2013): 8.

²³ Freier, Nathan. “The Emerging Anti-Access/Area-Denial Challenge.” *CSIS Analysis*, May 17, 2012. <https://www.csis.org/analysis/emerging-anti-accessarea-denial-challenge>

²⁴ Cliff, Roger, Mark Burles, and Michael Chase. *Entering the Dragon’s Lair: Chinese Anti-Access Strategies and Their Implications to the United States*. Santa Monica, CA: RAND Corp., 2007.

²⁵ Van Tol, Jan, Mark Gunzinger, Andrew Krepinevich, and Jim Thomas. “AirSea Battle.” *CSBA Presentation*, May 18, 2010.

Meanwhile, area denial (AD) measures can be any actions that negate the opponent's conventional capabilities and freedom of action that provide a decisive advantage in the theatre at the operational and tactical levels. Specifically, AD operations challenge the ability to maintain localised air, land, and maritime superiority, space and cyberspace superiority and security, and the ability to conduct joint operations in select areas of conflict. AD measures are therefore barriers to effective operations by opponent's forces in every conceivable contingency employment of air, sea, or ground forces. At the strategic level, AD actions are designed to affect adversary's strategic calculations prior to conflict escalation by increasing the level of operational risks as well as uncertainty in estimating probable outcomes in the use of force. In doing so, AD may leverage on a range of capabilities from the use of cruise and ballistic missiles, weapons of mass destruction, integrated air defences, electronic and cyber warfare, and anti-satellite weapons, as well as the use of non-military unconventional actors or proxies that increase the levels of resistance in select conflict areas or zones.

The use of A2/AD as a strategy has existed throughout the history of warfare. In World War II, for example, German submarine operations in the North Atlantic aimed to prevent the deployment and supply of US forces in Europe. During the Cold War, US A2/AD strategies focused on preventing a Soviet offensive against Western Europe, as well as preventing Russian submarine fleet and air assets to interfere with North Atlantic Treaty Organisation's (NATO) sea lines of communication (SLOCs). The origins of the current A2/AD debate in the US and NATO strategic thought, however, date back to the post-Cold War era of the early 1990s, when the US military became increasingly concerned with proliferation threats of weapons of mass destruction, ballistic and cruise missiles, and later with the diffusion of advanced military technologies, including growing fleets of submarines, over-the-horizon surveillance systems, air defence systems, improved fighter and bomber aircraft, surface combatants with computing power and battle networks that could effectively negate US power projection in vital regions of the world.²⁶ These concerns have gradually emerged in a number of official reports and publications at that time, including by the *Office of Net Assessment* in the Pentagon, *Defense Science Board, Quadrennial Defense Reviews*, and military service documents discussing future operational concepts — particularly in the context of the US military “transformation strategy” of the

²⁶ Cliff, Roger, Mark Burles and Michael Chase. *Entering the Dragon's Lair: Chinese Anti-Access Strategies and Their Implications to the United States*. Santa Monica, CA: RAND Corp., 2007; ASBO. *Air-Sea Battle: Service Collaboration to Address Anti-Access and Area Denial Challenges*. Washington D.C., 2013.

late 1990s.²⁷ For the United States, the diffusion of varying A2/AD military technologies, particularly in East Asia, would raise the potential costs of conflicts; undermine the credibility of US security guarantees to its allies and partners; increase the costs of long-term competition as well as the risks of deterrence failure, and ultimately, provide multi-level strategic and operational risks for the US bases and forward-deployed forces there.²⁸

Inherently, the growing impetus for the A2/AD discourse emanated from the PLA watchers and their efforts to identify and interpret shifts in the Chinese strategic thought as well as direction and character of PLA military-technological advances. In the mid-1990s, the PLA shifted its military doctrine toward the concept of “local wars under modern high-technology conditions” that called for advanced military capabilities to deter and defeat a technologically superior adversary in China’s maritime periphery — or the “three seas” (the Yellow, East China, and South China Seas).²⁹ China learned from major conflicts and crises at that time, including the 1991 Gulf War, the Third Taiwan Strait Crisis (1995–1996), and the 1999 NATO’s Air War in Kosovo, and concluded that in order to defeat a technologically superior adversary such as the United States, the PLA would have to disrupt the location and disposition of an adversary’s forces and deny them access to bases and facilities on the soil of its regional allies. The central theme for Chinese military planners therefore became devising strategies and weapons technologies that would maximise China’s relative strengths, while creating opportunities to exploit US’ weaknesses — particularly in asymmetric domains of space, near-space, cyberspace and underwater.³⁰ While the PLA would remain focused on training for varying Taiwan scenarios, it embarked on new missions to “safeguard border, coastal, and territorial air security” from intervention or interference from either state or non-state threats, “protect national security interests in space and cyberspace”, and gradually expand its maritime, air, and increasingly expeditionary forces capabilities.³¹ In this context, Chinese doctrinal writings

²⁷ Krepinevich, Andrew, Barry Watts and Robert Work. *Meeting the Anti-Access and Area-Denial Challenge*. Washington D.C.: Center for Strategic and Budgetary Assessments, 2002.

²⁸ Lord, Carnes, and Andrew Erickson. “Guam and American Security in the Pacific” In *Rebalancing U.S. Forces: Basing and Forward Presence in the Asia-Pacific* edited by Carnes Lord and Andrew Erickson, 9, Annapolis, MD: Naval Institute Press, 2014.

²⁹ Godwin, Paul. “Compensating for Deficiencies: Doctrinal Evolution in the Chinese People’s Liberation Army: 1978-1999.” In *Seeking Truth from Facts: A Retrospective on Chinese Military Studies in the Post-Mao Era* edited by Mulvenon, James and Yang, Andrews, Santa Monica, CA: RAND Corp., 2001.

³⁰ Tai Ming Cheung, “Introduction.” In *Forging China’s Military Might: A New Framework for Assessing Innovation* edited by Tai Ming Cheung, 1-15, Baltimore, MD: Johns Hopkins University Press, 2014.

³¹ Chase, Michael, et.al. *China’s Incomplete Military Transformation: Assessing the Weaknesses of the People’s Liberation Army*. Santa Monica, CA: RAND Corporation, 2015.

over the past two decades devoted substantial focus on achieving the concept of information dominance (*zhi xinxi quan*) coupled with precision strikes — i.e., gaining comparative advantage in the PLA's ability to acquire precise information on the location and disposition of opponent's forces as a means for the PLA to carry out pre-emptive air and naval precision strike operations. The closest approximation to A2/AD in the Chinese strategic thought became the concept of "Active Strategic Counterattacks on Exterior Lines" (ASCEL), which envisioned the use of long-range strike capabilities not only at opponent's forces, but more importantly on select command, control, and logistical infrastructure that support them.³²

In short, as China began a transition from a continental to a primarily maritime power, the PLA conceptualised new operational requirements, which shaped the pace, direction, and character of its military modernisation in the 21st century. Notwithstanding upgrades of existing conventional capabilities, the PLA increasingly directed investments into A2/AD-related technologies: next-generation nuclear and conventional ballistic missiles, advanced air and early warning defence systems, electronic and cyberwarfare capabilities, new classes of submarines, surface combat vessels and fourth/fifth generation multi-role combat aircraft.³³ The PLA's future warfare priorities also include experimental advanced "reconnaissance-strike complexes" — i.e., weapons platforms and systems, including hypersonic vehicles, long-range precision strike assets, as well as offensive and defensive space and cyber capabilities.³⁴ These technologies would enable the PLA to fight and win "informationised local wars" — by negating conventional capabilities that enable power projection, forward presence, freedom of action, and decisive advantage in combat of its opponents.³⁵

In the mid-2000s, these developments have arguably prompted the adaptation of the A2/AD debate in the mainstream US strategic discourse. The underlying assumption became that in the Asia Pacific, conventional threats, scenarios, and contingencies linked to high-intensity conventional wars are giving away to new forms of high-tech asymmetric and non-linear types of conflicts that feature A2/AD-related strategies, and accordingly the

³² Stokes, Mark A. *China's Strategic Modernization: Implications for the United States*. Carlisle, PA: Strategic Studies Institute, 1999; Yuliang, Zhang. *Science of Campaigns*. Beijing: National Defense University Press, 2006; Lee Wishik, Anton. "An Anti-Access Approximation: The PLA's Active Strategic Counterattacks on Exterior Lines." *China Security* 19 (2011): 38.

³³ Cordesman, Anthony, Ashley Hess and Nicholas Yarosh. *Chinese Military Modernization and Force Development*. Washington DC: Center for Strategic and International Studies, 2013.

³⁴ Friedberg, Aaron. *Beyond Air-Sea Battle: The Debate over U.S. Military Strategy in Asia*. London: International Institute for Strategic Studies, 2014.

³⁵ Fravel, Taylor. "China's New Military Strategy: Winning Informationized Local Wars." *China Brief* 15 (2015).

United States must prepare to fight, and win new types of conflicts. In this context, the key question became how should the US military sustain long-term credible cross-domain deterrence, while projecting power in select contested areas, and simultaneously mitigate a range of escalating risks amid emerging A2/AD challenges?³⁶ In July 2009, for example, the then Secretary of Defence, Robert Gates, instructed military planners to explore options to “preserve the US ability to project power and maintain freedom of action in the global commons.”³⁷ The initial response was the development of a new joint Air-Sea Battle (ASB) concept accompanied by the creation of a joint Air-Sea Battle Office (ASBO) within the US Department of Defence (DOD). Its proponents argued that the concept does not specifically aim at China as an adversary, but it is designed to restore and sustain the US ability to project expeditionary power, access to forward bases, and mobility throughout potential battle spaces.³⁸

Since its inception, however, the ASB has been hindered by strategic ambiguity and uncertain escalatory and operational consequences. In particular, the ASB envisioned integrated air and naval operations or “Networked, Integrated Attack-in-Depth” to disrupt, destroy, and defeat (NIA/D3) adversary’s A2/AD threats. The operational concept projected three “lines of effort” in a potential Sino-US conflict: First, by striking intelligence, surveillance, and reconnaissance (ISR) assets — i.e., Chinese satellites, ground stations, counter-space capabilities, and over-the-horizon radars — from afar through a “Blinding Campaign” in order to deny their situational awareness, or the ability to track and locate targets. These initial strikes would allow US aircraft carrier groups and submarines to gain access to the battlespace and carry out a second phase — “Missile Suppression Campaign” to disrupt opponent’s air defence and missile networks, using stealthy long-range precision strike platforms, supported by submarine-launched weapons and sensors. By negating critical air-defence assets and the consequent achievement of air superiority, US forces would be able to attack [Chinese] land-based missile launchers, surface-to-surface missiles, and their supporting infrastructure. Thirdly, by conducting diverse follow-on operations by the United States and allied forces, such as “distant blockades” to seize the operational initiative and ensure protracted US freedom of action in the region.³⁹

³⁶ Friedberg, Aaron. *Beyond Air-Sea Battle: The Debate over U.S. Military Strategy in Asia*. London: International Institute for Strategic Studies, 2014.

³⁷ Hutchens, Michael E., et.al. “Joint Concept for Access and Maneuver in the Global Commons: A New Joint Operational Concept.” *Joint Force Quarterly* 84 (2017).

³⁸ Schwartz, Norton. “Remarks to the National Defense University Distinguished Lecture Program.” (2010).

³⁹ Van Tol, Jan, et.al. “AirSea Battle.” *CSBA Presentation*, May 18, 2010.

Critics of the ASB argued that its implementation would be an “extremely challenging mission” conditioned by a number of factors. For example, the prevailing vulnerabilities of fixed US bases and forward-deployed forces in the Western Pacific would draw significant damage to a Chinese first strike using a mixture of ballistic missiles, cruise missiles, and torpedoes. The success of the ASB would also depend on the stealth of US-manned aircraft in penetrating Chinese air defences and destroying China’s C4ISR networks that are located far inland, outside the range of current sea-launched cruise missiles. The PLA would likely have dispersed as many of its weapons as possible prior or immediately after US strike. More importantly, regardless of the military objectives, the ASB did project desired political outcomes — a “theory of victory.” Notwithstanding ASB strikes, these would not diminish China’s capacity to launch conventional strikes on US allies, forces, and bases. At the same time, the ASB amplified inherent escalatory risks, particularly at the nuclear level as an unintended consequence of the US hitting key targets in the Chinese mainland. Similarly, a Chinese counter-strike using conventional A2/AD weapons could provoke a nuclear response from the United States.⁴⁰ Finally, the ASB did not establish clear inter-operability lines, roles, and missions for US allies in the region such as South Korea and Japan; in other words, to what extent would be their involvement in the ASB campaign at the political, strategic, and operational levels.⁴¹

Amid the varying strategic uncertainties and operational risks of rapid escalation in the ASB concept, the DOD renamed the ASB concept into Joint Concept for Access and Maneuver in the Global Commons (JAM-GC) in February 2015. At the same time, A2/AD debate shifted toward alternative “indirect” strategies to counter A2/AD challenges — i.e., using air and naval operations, outside the range of China’s A2/AD systems, to exert economic costs and military pressure. A plausible indirect measure, for example, would be imposing a general blockade in distant areas that would limit the freedom of action of Chinese commercial ships and tankers in areas vital to China’s sea lines of communications (SLOCs). The US Navy and its allies would attempt to stop, seize, and divert large oil tankers heading to China in the Malacca Strait in the South China Sea or the Lombok and Sunda Straits near the Indonesian archipelago. The blockade would impose costs on Chinese access to overseas trade exports, and limit China’s access to seaborne oil and energy imports that may consequently disrupt its economy, social stability, and military

⁴⁰ Friedberg, Aaron. *Beyond Air-Sea Battle: The Debate over U.S. Military Strategy in Asia*. London: International Institute for Strategic Studies, 2014.

⁴¹ Bitzinger, Richard and Michael Raska. “The AirSea Battle Debate and the Future of Conflict in East Asia,” *RSIS Policy Brief*, (2013).

capacity.⁴² To prevent the PLA Navy an effective response, the United States would turn to “maritime denial” strategies such as “offshore control” and “mutually denied battlespace” — attacking Chinese naval vessels and commercial ships throughout the near seas or the first island chain, using submarines, unmanned underwater vehicles, and sophisticated mines. Cut off from access to offshore supplies of oil and natural gas, and having limited anti-submarine warfare capabilities, the remaining Chinese vessels may then withdraw to the coastline areas, which would create a maritime exclusion zone in the first island chain.⁴³ Critics of maritime-denial strategies, however, questioned the implementation and effectiveness of these measures, particularly as they did not counter China’s land-based A2/AD networks, air and missile forces directed primarily at denying access to its near seas.

Notwithstanding the varying conceptual debate of countering A2/AD threats at the operational level, the essential nature of A2/AD challenges has been embedded in the strategic competition between major powers in East Asia — the struggle for dominance by the region’s two major powers — China and Japan; the future of the Korean Peninsula; the intra-regional competition in territorial disputes in the East China Sea and South China Sea; and perhaps most importantly, the contours of long-term regional strategic competition and cooperation between China, Russia, and the United States. While during the Cold War, the United States was capable of concentrating forces principally against the Soviet Union; today, the US military is constrained by its global force dispersion and full spectrum capability requirements, compounded by commitments in the Middle East, the Eastern Europe, and East Asia. Under these conditions, the United States has been searching to extend the margins of its military technological superiority to offset the widening range of operational requirements, while focusing on the future development of advanced military technologies. In this context, another school of thought on countering A2/AD challenges emerged — under the conceptual umbrella of the Third Offset Strategy.

In particular, the Third Offset Strategy became public in the 2014 Defence Innovation Initiative, which projected as a comprehensive effort for the

⁴² Friedberg, Aaron. *Beyond Air-Sea Battle: The Debate over U.S. Military Strategy in Asia*, 2014.

⁴³ Kline, Jeffrey and Wayne Hughes. “Between Peace and the Air-Sea Battle: A War at Sea Strategy.” *Naval War College Review* 65 (2012): 35-40; Hammes, T.X. “Offshore Control: A Proposed Strategy for an Unlikely Conflict.” *Strategic Forum* 278 (2012); Raska, Michael. “Decoding the Air-Sea Battle Concept: Operational Consequences and Allied Concerns.” *RSIS Commentaries* 158 (2012).

US defence community to search for innovative ways to sustain and advance US military superiority, in an era when US dominance in key war-fighting domains has been eroding, while facing constrained and uncertain budgets.⁴⁴ The Defense Industry Initiative called for a revamped institutional agility that would accelerate US military innovation in select linked areas, including leadership and defence management, long-range research and development programmes to identify, develop, and field breakthrough technologies, a reinvigorated war-gaming effort to develop and test alternative ways of achieving strategic objectives, and novel operational concepts to employ resources to greater strategic effects. Accordingly, the Third Offset Strategy sought to conduct numerous “small bets” on advanced capability research and demonstrations, while working to craft new operational concepts to determine capability requirements and top priority investments that will shape US military strategy in the 21st century. A key proponent of the Third Offset, former Deputy Secretary of Defence, Robert Work, argued that the Third Offset Strategy represents “technologically enabled operational and organisational constructs that provide the joint force an advantage — primarily at the operational level of war, but also the tactical — thereby strengthening conventional deterrence.”⁴⁵ While many of the details on the Third Offset technologies and programmes have been clouded in secrecy, key technological priority areas have been published. For example, these include:⁴⁶

- (i) **Learning machines** — leveraging artificial intelligence and autonomy into an offset advantage; i.e., instantly responding against cyberattacks, electronic attacks or attacks against space architecture or missiles;
- (ii) **Human-machine collaboration** — using advanced computers and visualisation to help people make faster, better, and more relevant decisions;
- (iii) **Assisted human operations** — plugging every pilot, soldier, sailor and marine into the battle network;
- (iv) **Human-machine combat teaming** — creating new ways for manned and unmanned platforms to operate; and

⁴⁴ Walton, Timothy. “Security the Third Offset Strategy - Priorities for the Next Secretary of Defence.” *Joint Forces Quarterly* 82 (2016): 6-15; Hagel, Chuck. “Memorandum - The Defence Innovation Initiative.” *Office of the Secretary of Defence*, 2014. <http://www.defense.gov/Portals/1/Documents/pubs/OSD013411-14.pdf>

⁴⁵ Pellerin, Cheryl. “Deputy Secretary Discusses Third Offset, First Organizational Construct.” *Department of Defence News*, September 21, 2016. <http://www.defense.gov/News/Article/Article/951689>

⁴⁶ Pellerin, Cheryl. “Work: Human-Machine Teaming Represents Defence Technology Future.” *Department of Defence News*, November 8, 2015. <http://www.defense.gov/News/Article/Article/628154/work-human-machine-teaming-represents-defense-technology-future>

- (v) **Network-enabled autonomous weapons** — weapons platforms and systems plugged into a learning command, control, communications, and intelligence, or C3I, network.

Other “hidden” capabilities associated with the Third Offset may include cross-domain strategic deterrence capabilities, particularly in the context of nuclear and cyber deterrence. For example, under the Advanced Capabilities and Deterrence Panel, the DOD has been exploring new “non-kinetic” techniques and capabilities to counter A2/AD-related ballistic missile threats. While open source information is scarce, these “left-of-launch” missile defence capabilities may potentially include hacking into an adversary’s command and control networks, system computers, and their sensors prior to missile launches; jamming radars and navigations systems so that the missiles that do launch fly off target. In turn, these techniques could reduce the number of incoming missiles, and thus the number of interceptors the United States fires at them.⁴⁷ Furthermore, given the accelerated nuclear modernisation in the Russian and Chinese arsenals, and their potential use at the tactical level, it is likely that Third Offset will also focus on these challenges, albeit behind the veil of secrecy. In the United States, this may include the development of steerable and smart tactical nuclear weapons such as the B61-12.⁴⁸

Taken together, with the diffusion of complex A2/AD challenges, the United States and its allies are forced to rethink existing concepts of operations, doctrinal command-and-control methodologies, organisational force structures, training programmes, and ultimately, military-technological acquisition priorities. As in the past, major changes in the direction and character of conflicts will have implications on defence planning, resource allocation, training, organisation, and the use of force — propelling the need for a *sustained military innovation* — conceptual, organisational, and technological innovation intended to enhance the military’s ability to prepare for, fight, and win new types of wars. Select military technologies and capabilities will diffuse to other major and many minor military powers, reshaping the paths and patterns of regional military modernisation. The confluence of new strategies, technologies, organisations, and doctrines in the broader context of global power transitions will shape the direction, pace, character, and outcome of military change in East Asia. As new

⁴⁷ Gertz, Bill. “Pentagon Developing Pre-Launch Cyber Attacks on Missiles.” *The Washington Free Beacon*, April 14, 2016. <http://freebeacon.com/national-security/pentagon-developing-pre-launch-cyber-attacks-missiles/>

⁴⁸ National Nuclear Security Administration. “NNSA Reaches Important Milestone with B61-12 Life Extension Program.” *Department of Energy, National Nuclear Security Administration*, 2016.

strategic realities create new powers, new types of future conflicts will emerge.

However, the effectiveness of military innovation trajectories, including the varying A2/AD strategies and its counters, must be viewed in a relative context — through the lens of *competitive strategies* reflected in the efforts to develop counter-measures and responses. As such, A2/AD will be shaped by varying strategic cultures. Indeed, different cultures will think differently about military innovation and produce various types of doctrinal outcomes from the same technological discontinuity.⁴⁹ In this view, A2/AD trajectories will be conditioned by different national “cognitive styles” — i.e., strategic preferences, perceptions, ideas and knowledge, techniques and professional attributes and patterns of habitual behaviour acquired over time within member of national strategic community. Cultural norms and professional traditions will continue to set the context for military innovation, fundamentally shaping organisational choices, preferences, and reactions to technological and strategic opportunities.⁵⁰

⁴⁹ Adamsky, Dima. *The Culture of Military Innovation: The Impact of Cultural Factors on the Revolution in Military Affairs in Russia, the US, and Israel*. Palo Alto: Stanford University Press, 2010.

⁵⁰ Farrell, Theo, and Terry Terriff, ed. *The Sources of Military Change: Culture, Politics, Technology*; Farrell, Theo. “Culture and Military Power.” *Review of International Studies* 24 (1998): 407-416.

A2/AD – The Israeli Experience

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Anti-access/area denial (A2/AD) has become a hot topic in recent years. Many have detailed the threats that A2/AD weapons systems pose to the US military, especially its aircraft carriers. But those threats are not new; A2/AD campaigns have been waged since the Greco-Persian War. They are not even new threats to American aircraft carriers, which faced a similar threat from the Soviet Navy during the Cold War.⁵¹

The Case of the *Sirenia*, 1973

One of the first real combat cases of A2/AD for the Israeli Navy occurred at the end of the 1973 war in the Gulf of Suez. On 26 October 1973, the tanker “Siris” was hit by a mine in the Jubal straits and sunk. The entrance and passage for oil tankers, which carried the crude oil from the oil fields in Abu Rodez, were risky to use and were practically blocked by an A2/AD action.

The small tanker *Sirenia* was used as a “mine pass cleaner” in the narrow straits of Milan, east of the Jubal, while large tankers, reloading the crude oil from Abu Rodez oil fields, followed the *Sirenia*’s wake 2,000 yards behind, with the idea that the ship will blow up the mines before the loaded tanker will be hit. The suspected mines were Russian model KMD-2-500 with sensors responding to physical fields of a ship such as its acoustic, magnetic (induction), hydrodynamic (pressure), electric, etc. These factors, in combination with a delay arming, ship counting, channel selection and telecontrol devices, makes the mine highly resistant to sweeps. As the mines are planted on the seabed, they hide in mud.

Most A2/AD strategies of “active defence” operate as variety of military capabilities that have been arranged into multi-layer configurations for identifying forces and freedom of manoeuvring within a significant portion of a specific arena,⁵² and denying their approach or freedom of operation.

⁵¹ Cowan, Christopher. “A2/AD - Anti-Access/Area Denial.” https://www.realcleardefense.com/articles/2016/09/13/a2ad_-_anti-accessarea_denial_110052.html

⁵² Goldsmith, Sam. “China’s anti-access & area-denial operational concept and the dilemmas for Japan.” master’s thesis. Australia National University, 2012. https://openresearch.repository.anu.edu.au/bitstream/1885/9721/1/Goldsmith_ChinasAntiAccess2012MastersThesis.pdf

The basic idea is to have the capability and means to deter and optionally defeat technologically superior enemies. As such, an area denial weapon is a device used to prevent an adversary from occupying or traversing an area of land, sea, or air.

A Short History of A2/AD Weapons and Technology

There are several types of historical, land-based A2/AD systems and technologies. Iron caltrops were used as early as 331 BC by Darius III against Alexander the Great at the Battle of Gaugamela in Persia. The Great Wall of China is a series of fortifications made from various materials, generally built along an east-to-west line across the historical northern borders of China to protect the Chinese states and empires against the raids and invasions of the various nomadic groups of the Eurasian Steppe since the seventh century BC. The Siegfried line was a World War I line of defensive forts, and tank defences built by Germany in northern France during 1916–1917 as a section of the Hindenburg Line. (In English, the term “Siegfried Line” commonly refers to the “West wall”). The Maginot Line was a line of concrete fortifications, obstacles, and weapon installations built by France in the 1930s to deter invasion by Germany, and force them to move around the fortifications. Tank artillery is also considered to be an active defence weapon. Barrage balloons as air defence (e.g., the Battle of Britain), along with other types of defences — radar, missile shields, etc. — constitute their own “anti-access” systems. In particular, surface-to-air missiles — for example, Russian-made anti-air missiles were used by the Egyptian army in the 1973 Arab-Israeli war — can be seen as anti-access or area denial weapons. Finally, measures such as a blockade and encirclement — i.e., a tactical move that surrounds and isolates some area of importance to the enemy — are further examples of A2/AD. Another example is the Israeli Army encirclement of the second and third Egyptian Armies, after crossing the Suez Canal during the 1973 war.

At sea, the concept of the naval blockade — the interdiction of a nation’s lines of communication at sea using naval power — is an old but still quite effective A2/AD concept. It has been used in many cases during history, such as the French blockade of England (1806), the English blockade of America during the War of 1812 (1812–1815), the Northern blockade of the Confederate States during the American Civil War (1861–1865), the British blockade of Germany during the First and Second World Wars, the UN-mandated blockade of North Korea (1950–1953), the UN and US blockade of North Vietnam (1965–1973), and finally, the British blockade around the Falkland Islands during the Falklands War (1982).

During the Cuban Missile Crisis in October 1962, for example, the United States established a military blockade (designated a “quarantine”) to prevent further missiles from entering Cuba. It announced that they would not permit offensive weapons to be delivered to Cuba and demanded that the weapons already in Cuba be dismantled and returned to the Union of Soviet Socialist Republics.

The Gaza Case

The use of an effective naval blockade as an A2/AD tactic by the Israeli Navy has been implemented against Gaza since 2007. The main reason for this strategy was the fact that the Palestinian group, Hamas, took control of the territory that year. Since that time, Gaza has been utilised as a haven for launching thousands of rockets, missiles, and mortar shells into Israel. In response, Israel has implemented a quarantine around Gaza, in order to halt so-called “terror convoys,” organised and supported by various organisations, from sailing to Gaza, or allowing commercial shipping and traders to smuggle weapons or military materials into the territory. A security blockade was imposed on the sea area of Gaza. The size of Gaza’s fishing area was reduced to a six-mile limit and tightly controlled by the Israeli Navy. In addition, the navy has operated around the clock to prevent infiltration, including using surface and sub-surface assets to patrol and gather intelligence. In addition, the Israeli Navy has been employed to defend oil and gas fields in the Mediterranean Sea close to Gaza.

In two cases, the Israeli Navy succeeded in detecting and intercepting ships in the Red Sea carrying large numbers of weapons, including rockets and missiles from Iran, for the Hamas in Gaza.

The Lebanon Case, 2006

As part of the Second Lebanon War in July 2006, Israel imposed a naval blockade on the coast and ports of Lebanon as part of the naval, land and air operations against Iranian-backed Hezbollah forces operating in that country. The first phase of this blockade was of an immediate, close-to-shore blockage of the coast and Lebanese ports, but after the *Hanit* (an Israeli Navy Saar-5 corvette) was hit by a Hezbollah coastal missile on 14 July 2006, the blockade was imposed to a greater distance from the shore, beyond the horizon.

The Second Lebanon War lasted for 34 days, but the naval blockade

continued for two more weeks in order to “escort” the withdrawal of the ground forces and to put pressure on the Lebanese government until the conclusion of a diplomatic agreement. In addition, an earlier naval blockade had been imposed by Israel in April 1996 as part of the “The Grapes of Wrath” operation against the Hezbollah; this blockade lasted for two weeks.

The impact of both the 1996 and 2006 blockades on the Lebanese economy was significant. In both cases, maritime trade ceased entirely, including smuggling, probably due to the limited covered area and the size of naval forces involved. The blockade on Lebanon caused heavy damage to Lebanon’s economy by dramatically reducing imports and export, which in turn affected the country’s income and revenues. Local companies were greatly affected. Due to the Civil War in Syria, the land-based commercial lines were closed, and so shipping became an even more vital and important contributor to Lebanon’s economy. It can be presumed therefore, that naval blockades, given sufficient patience and time, can achieve important strategic goals and even strategic victory, even without firing a shot.

Summary

One of the characteristics of the naval blockade is its flexibility, from a “classic” blockade using surface vessels to the use of submarines and missiles of various types. The Israeli experience of using such blockades has proved more than once that this A2/AD-type operation can play a significant role in achieving the strategic goals of the State of Israel.

Russian Anti-Access/Area Denial (A2/AD) in the Mediterranean Arena: Implications of the Israeli Navy

Commander (Ret.) Eyal Pinko

Research Fellow at Haifa Research Centre for Maritime Policy & Strategy

Area denial or sea denial is a naval concept, which describes military efforts that aim to prevent an adversary's manoeuvres and control in a defined area.⁵³ An extension of this definition can be found in a US Central Command document published in 2012. According to this definition, sea-denial involves a series of actions that prevent an adversary from acting, manoeuvring and projecting his power against the defender⁵⁴. Already in this definition it is stated that the activities that make it possible to deny naval access also enable the defender's forces (both military and civilian) to operate freely while protecting shipping lanes and maritime resources (such as offshore oil and gas facilities). This is essentially a modern concept that relates to warfare strategy that focuses on preventing an adversary from operating his forces or his weaponry near or within a defined area. The denial of access involves a series of efforts invested by the defender as part of his warfare strategy.⁵⁵

A study carried out at the US Naval War College states that naval access denial efforts constitute one of the characteristics of modern naval warfare, with emphasis on the fact that naval access denial is a strategy adopted by inferior navies in general and navies in East Asia (those of China and Iran), in particular to defeat more advanced navies (such as those of the United States and its allies).⁵⁶ It is possible to distinguish between two types of access denial: The first is anti-access, which involves a series of actions by the defender in order to prevent his adversary from entering his area of activity. The second is area denial which involves a series of actions and means used by the defender at relatively short ranges in order to prevent an adversary from activating his weaponry.⁵⁷

⁵³ Christopher, Harmer. "Iranian Naval and Maritime Strategy." *Middle East Security Report 12 6* (2013): 7 6.

⁵⁴ Abisellan, Eduardo A. "CENTCOM's China Challenges: Anti-Access and Area Denial in the Middle East." *21st Century Defense Initiative Policy Paper 6* (2012): 5-10.

⁵⁵ Tangredi, S.J. *Anti-Access Warfare Countering A2/AD Strategies*. Naval Institute Press, 2013.

⁵⁶ Malandrino, Greg. "Tactical Success and Operational Failure in the Anti-Access Area-Denial Environment: A Historical Operational Art Analysis of Operation." *Naval War College New Port 5* (2012): 1-5.

⁵⁷ DoD. "Joint Operational Access Concept (JOAC) Version 1." *U.S. Department of Defense 1* (2012): i-ii.

This essay, consequently, will examine the implementation of the A2/AD strategy in the Mediterranean theatre by the Russian Navy and its effect on the Israeli Navy.

Russian A2/AD Strategy

Since the early days of the Cold War, and in response to NATO's unmatched ability to conduct large-scale air and naval operations and the ability of NATO to block Russia from entering the Atlantic Ocean by controlling the Bosphorus Straits and the Baltic Sea, Russia established large anti-access/area denial (A2/AD) exclusion zones or "bubbles" around the Baltic states, the Black Sea, the Eastern Mediterranean, and the Arctic. These A2/AD bubbles, which still exist, allow Russia to deny the use of the air and maritime spaces in these regions and dramatically constrain the movement of ships and land forces in a time of crisis.⁵⁸

In recent years, and especially since the Syrian uprising (2011), the Russian Navy's presence in the Eastern Mediterranean area and in Syria has expanded significantly. The expansion of the Russian presence in Syria is part of Russia's new naval doctrine, which was first published in 2012, and revised in July 2016, called the *Revised Russian Naval Doctrine up to 2030*.⁵⁹ As in the case of previous strategic documents, it defines the role of the navy as part of Russia's security policy, its targets, its main directions for the build-up of naval force and the geographic areas of its naval operations. The document also includes an assessment of threats up to 2030.

The document states that the main threat in the maritime domain originates from the forces of the United States and NATO, which are endeavouring to achieve a dominant position in the ocean and absolute superiority in the sea.⁶⁰ It also states that the Russian Navy must be ready to deal with technologically advanced adversarial navies, which are equipped with high-precision weaponry, and that Russia must strive for a situation in which its navy remains in second place regarding warfare capability.⁶¹ This aspiration

⁵⁸ Loic, Burton. "Bubble Trouble: Russia's A2/AD Capabilities." *Foreign Policy Association*, October 25, 2016. <https://foreignpolicyblogs.com/2016/10/25/bubble-trouble-russia-a2-ad/>

⁵⁹ *Ibid.*

⁶⁰ Global Security, "Russian Maritime Doctrine," accessed March 20, 2018, <https://www.globalsecurity.org/military/world/russia/mf-doctrine.htm>; and Center for Strategic Assessment and Forecasts, "The Marine Doctrine of the Russian Federation for the Period til 2020," accessed March 20, 2018, <http://csef.ru/en/politica-i-geopolitica/510/morskaya-doktrina-rossijskoj-federaczii-na-period-do-2020-goda-7984>

⁶¹ *Ibid.* Chapter 5, paragraph 39.

expresses the Russian understanding that the US Navy is the most advanced in the world and that Russia does not intend to build a navy similar in size or quality. The new document relates, in a general way, to the need for operational capability in all regions and in ensuring the ability to maintain the long-term presence of Russian naval forces in strategically important maritime regions,⁶² and specifically emphasises the strategic importance, from the perspective of the Russian regime, of Russian naval presence in the Black Sea, the Mediterranean and the Arctic.⁶³ The rest of the arenas are defined as other directions that have less strategic importance.⁶⁴

The Russian strategy becomes even more important in view of the weakening of the US presence in the Mediterranean arena, which began under President Obama and is continuing with even greater intensity under President Trump. The weakening of the US presence in the region is the result of a strategic decision made by two US presidents to transfer the bulk of its naval forces to Asia, in view of the growing threat from China and North Korea. The primary objective of the increased involvement of Russia in the region is to reposition itself as a world power. Through its focused and determined intervention in Syria, Russia demonstrated that it is a key player whose involvement is essential to the resolution of international issues. The West, which for more than four years had failed to resolve a steadily exacerbating problem in Syria, is now forced to consider the Russian positions even more carefully, and to involve Moscow in resolving the crisis.⁶⁵

The second objective of Russia's involvement was to leverage the Syrian issue in order to resolve problems in other arenas important to it, mainly Europe in general and Ukraine in particular. Russian involvement in Syria was intended to apply pressure on the West to remove the sanctions imposed by the United States and Europe following the Russian operations in Ukraine.⁶⁶

The Russian maritime presence in Syria is one of the most important ways in which Russia implements its strategy. In practice, the implementation of the Russian maritime strategy in the Mediterranean is basically manifested in the expansion and upgrade of the Russian naval port at Tartus, the

⁶² Ibid., Chapter 3, Paragraph 30d.

⁶³ Ibid., Chapter 4, Paragraph 37f.

⁶⁴ Ibid., Chapter 4, Paragraph 37g.

⁶⁵ Amos, Yadlin. "Russia in Syria and the Implications for Israel." *Strategic Assessment* 19 (2016): 9.

⁶⁶ Ibid.

deployment of strategic weapons along the Syrian coast (such as the advanced S-300 and PANTSIR (SA-22) air defence systems, the Yakhont land-to-sea anti-ship missile systems, Iskander short-range ballistic missile, long-range detection systems and electronic warfare systems), and the reinforced presence of Russian corvettes, submarines (with Caliber cruise missiles) and aircraft (fighter airplanes and helicopters) in the Mediterranean and particularly in Cyprus and Syria.

The Russian aircraft, which are deployed at the Khmeimim base near the port of Tartus, are apparently intended to provide air “umbrella” to the Russian Navy operating in the Mediterranean. In January 2017, Russia signed an agreement with the Syrian regime to lease a naval base within the Tartus port and the Khmeimim airport for a period of 49 years with automatic renewal for another 25 years. Russia began the construction of the port and its expansion with the intention of stationing about 10 to 20 ships there, as well as to provide maintenance capability.⁶⁷ As part of the agreement, the defence of the base against sea and air attacks is under Russian responsibility while its physical defence on land is the responsibility of Syria.

The implementation of the Russian maritime strategy can be seen in the prolonged warfare in Syria, during which the Russian Black Sea navy demonstrated intensive presence in the arena in the form of maritime patrols and was also responsible for the supply of weapons systems and munitions from Russia to Syria by means of supply ships, which brought cargo from its base in the Black Sea to Tartus. Furthermore, during 2016–2017, the Russian Navy carried out several attacks on high-quality ground targets in Syria by means of cruise missiles from submarines and from surface vessels in the Mediterranean, the Black Sea, and the Caspian Sea.

⁶⁷ “Russia to Expand Capabilities of Naval Base in Syrian Tartus”. *Sputnik* January 20, 2017. <https://sputniknews.com/military/201701201049836303-base-naval-russia-syria/>

About the Contributors



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Benny Ben Ari (Commander, retired) served for more than 14 years in the Israeli Navy, holding command positions (including command of a missile boat), as well as training and headquarters positions. After leaving the Navy in 1978, he joined Elbit Systems, a leading defence electronic company, and for 38 years, he has held marketing and management positions in the areas of Naval Systems and marketing in the Far East. He was also the Head of the International Marketing Department in Elbit's executive management. He lived in Singapore for many years managing Elbit activities in Asia and Southeast Asia while accumulating vast knowledge and practical experience in the region's culture and business, establishing long-lasting relations with various organisations and personnel. Today, he serves as the Deputy Head of the Chaikin Chair for Geo Strategy, and as a Research Fellow of the Haifa Research Centre for Maritime Policy and Strategy at Haifa University. He has a PhD from the University of South Australia in Defence Industries and Defence Marketing.



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Eyal Pinko (Commander, retired) served in the Israeli Navy for 23 years. During those years, he was a system engineer and a project manager for several missile development projects, and for six years, he was the head of a branch at the Israeli naval intelligence. Until recently, he served as the head of division at the ministry of defence. His bachelor's degree is in electronics engineering, and he holds master's degrees in political science and in organisational development. Since 2015, he has been a PhD candidate at the Bar-Ilan University and a Research Fellow at the Haifa Maritime Policy and Strategy Research Center. His research focuses on naval asymmetrical warfare.



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Workshop Programme

0900 hrs **Coffee and light breakfast**

0930 hrs **Session I: Opening Presentation**

Mr Richard A. Bitzinger
Senior Fellow, and Coordinator of Military Transformations Programme, IDSS, RSIS
“Chinese A2/AD Capabilities and the US Third Offset Strategy”

1000 hrs **Session II: The View from Singapore**

Chair

Dr Yoram Evron
Assistant Professor, Department of Asian Studies, University of Haifa

Dr Malcolm Cook
Senior Fellow, ISEAS-Yusok Ishak Institute
“Four Challenges, No Solutions: Strategic Overview of the South China Sea and Surrounding Waters”

Associate Professor Bernard Loo
Coordinator of the Master of Science (Strategic Studies) Programme, RSIS
“The Military Balance in Southeast Asia and A2/AD”

Assistant Professor Michael Raska
Military Transformations Programme, IDSS, RSIS
“A2/AD Future Concepts and Technologies: Perspectives, Responses, and Challenges”

Discussant

Dr Yoram Evron
Assistant Professor, Department of Asian Studies, University of Haifa

1200 hrs **Lunch**

1330 hrs

Session III: The View from Israel

Chair

Ms Jane Chan

Research Fellow and Coordinator of Maritime Security Programme, IDSS, RSIS

Commander (Ret.) Dr Benny Ben-Ari

Deputy Head, Chaikin Chair for Geo Strategy, and Research Fellow, Haifa Research Centre for Maritime Policy & Strategy

“A2/AD – The Israeli Experience”

Commander (Ret.) Eyal Pinko

Research Fellow at Haifa Research Centre for Maritime Policy & Strategy

“Russian Anti-Access/Area Denial (A2/AD) in the Mediterranean Arena: Implications of the Israeli Navy”

Discussant

Dr Yoram Evron

Assistant Professor, Department of Asian Studies, University of Haifa

1530 hrs

Coffee break

1545 hrs

Session IV: Summary Discussions

All panellists and participants

1615 hrs

Workshop Closing

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