

Simplify the Solution

An answer to the complex EABO challenge

by Anthony Devino

Since World War II, what has been to the U.S. military's advantage could now hamper it. Technology, ever since World War II, has given the U.S. the military edge to project power in every clime and place. Granada was a bit of a wakeup call and pointed out several readiness deficiencies. DESERT STORM validated to us that our technology investments gave us a military capability which few could match, and some started to describe us as a hyper-power. Our confidence was strong. The Gulf War further confirmed that our technical capabilities were unrivaled as we could deliver ordnance into any window of a building we desired. We were the premiere military in the world.

History is littered with a plethora of examples of militaries, once great, that were conquered because they relied on what always worked well for them. On the technology front, the same has occurred with business world. In the 1990s, would you ever have imagined AOL and Block Buster becoming obsolete slightly more than a decade later? Do you know that Netflix, at one time, offered to Block Buster the opportunity to buy them out? Block Buster did not see how their business environment was changing and how Netflix was on the cusp of a wave of what would become the new industry business model. Thomas S. Kuhn, in his book *The Structure of Scientific Revolutions*, third edition, emphasizes that "change usually comes from the young or outsider." In the video entertainment industry, Netflix was the outsider. They could see a new way to conduct business in video entertainment and when high-speed Internet launched, so did Netflix's success.

One could make the argument that China and Russia are the outsiders that

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see a new way to do business with us. So, what did they observe? We have highly capable, high cost platforms that we cannot risk losing. A loss of anyone of these platforms would be devastating in blood and financial cost and difficult to replace in time and cost—a loss that would have negative political ramifications.¹

Thomas G. Mahnken and Grace B. Kim in their 25 March article "Deterrence by Detection: A New Approach to Preventing Opportunistic Aggression"² state:

One of the most significant challenges the United States and our allies face is the need to prevent China or Russia from launching opportunistic acts of aggression. Beijing and Moscow have used sub-conventional gray zone aggression to erode international norms, undermine the U.S.-led rules-based order, and shift the balance of power in their favor, all without sparking open armed conflict with the United States or its allies. They are also developing the ability to launch aggression rapidly against states on their periphery under cover of increasingly capable defenses in an effort to achieve a *fait accompli*.

These exact words are also shared by Art Corbett in his "Restoring the Initiative" brief. We see examples of the *fait accompli* as China builds islands near our allies and we do not respond. This lack of action makes our allies lose trust that we will be there for them, thus forcing their hand to play nice with Beijing and reducing our influence in the region.

The good news is that the culture of the Marine Corps is to never accept status quo. You can see this in the *Commandant's Planning Guidance*, (July 2019), where the Commandant addresses the need of force structure change to take on the challenge in the South China Sea.

Our initial reaction is to evaluate how to re-establish the advantage with our science and technology. How can we get these capabilities to the fleet faster? This has always worked for us in the past. However, if we make this our only approach to regain the initiative in the South China Sea, it will be like Block Buster seeing their market share eroding and thinking if they get more brick and mortar stores, they can regain market share from the Netflix paradigm. I am not suggesting we abandon ways to streamline our acquisition process, nor to stop our aggressive research and development efforts. We will need these efforts to develop capabilities that will one day re-establish our capability to project power across any ocean in the world uninhibited. We need to think simple to solve this complex challenge.

So how do we take on this challenge in the South China Sea? If we think exotic technology will be our answer, we will become entrapped into the technology cost vortex (we develop a capability, adversaries counter that capability effectiveness, we invest more to re-establish the capability, the adversary counters, so on and so on.). Using words from the "Restoring the Initiative" brief, we need to flip the cost risk back onto our adversary. Affordable yet lethal solutions which have the ability to persist in the operating area autonomously should be the approach. Do not misconstrue autonomy with unmanned systems. Autonomy is more like how B.A. Friedman and Olivia A.

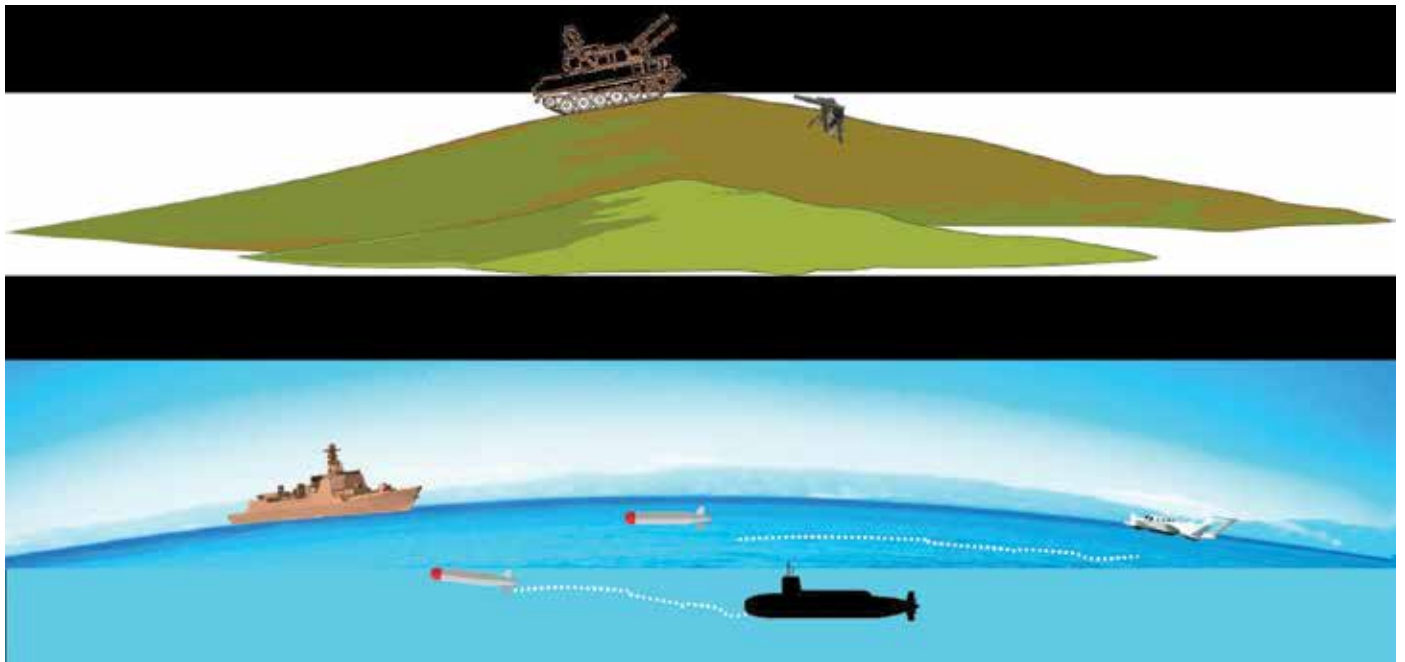


Figure 1. Terrain and maritime tactical defense . (Figure provided by author.)

Garard discuss mission command in their article “Technology-Enabled Mission Command: Keeping up with the (John Paul) Joneses.”³ This author is biased toward small crew manned systems that operate within mission command parameters. We have to expect that the electromagnetic environment is going to be denied or severely degraded within the weapon engagement zone (WEZ); small crew systems can continue to operate in these environments. Friedman and Garard emphasize the point about decentralized command which should be the expected operation plan within the WEZ.

References 1 and 2 both emphasize the need for affordable, resilient, lethal systems to operate within the WEZ. These smaller and capable systems become very effective in stopping a larger adversary when you employ them in the tactical defense.

The stand-in forces need to be small to make their detection difficult. Figure 1 shows how small units can hide from an adversary using the curvature of the earth in the same manner as infantry use reverse slope defensive tactics against armored vehicles cresting terrain. These stand-in force systems are best when maneuvered into place discretely where they can then sit and

wait to hinder adversary operations. Using the curvature of the earth, small systems can create a network of initial anti-air warfare, anti-surface warfare, anti-submarine warfare capabilities that are mutually supporting when engaging larger adversary platforms. These stand-in force would be the first line of defense. Think of it as guerrilla warfare on the sea. The stand-in forces would be distributed and operating under mission command objectives. Command and control systems will push situational awareness to the stand-in force systems. All stand-in force systems will apply emissions control until engagement begins. These small units on the sea, sit in wait and once they engage, maneuver back under a stronger umbrella of defense which requires speed. Initial engagements need to occur as far away from our defensive island chain as possible to inhibit the adversary from getting within their optimum WEZs.

So how do we make these stand-in forces affordable, resilient, and lethal? Keep things simple. Vehicles that can share the same payloads. The payload creates the mission capability. The payloads are interchangeable with any of the stand-in force systems. Various payload types could include: anti-air warfare, anti-surface warfare, anti-submarine

warfare, non-lethal, medical, communications relay, and search and rescue. Resiliency is created by being able to quickly configure a stand-in force vehicle with a payload to reconstitute a capability that might have been lost. Without any payload, the stand-in force vehicle can be used to haul cargo. Because the range required to project into the WEZ is large, one design of a stand-in force vehicle would not be optimum. For defending maritime terrain or confined seas, a boat similar to the World War II patrol torpedo boats would serve well in defending these short-range objectives. To reach further out a boat would not have the speed to maneuver effectively and would take too long to get on station. A vehicle more like a wing-in-ground-effect Airfish vehicle would serve well to penetrate far into the WEZ area of operation.⁴ Water is its runway and its designed to fly two to three meters above the water. This is a solid design that we could leverage off the research that has already been matured by Wigetworks. Wing-in ground effect vehicles have significant reduction in aerodynamic drag which results in greater lift capability for less fuel consumption. Both the patrol torpedo boat and the Airfish have short crew training periods to learn how to

operate which adds to the cost savings and resiliency of these options. Both vehicles would be easy to support logistically from many of the islands in the area of operations, thus causing an adversary to have to spend more time, energy, and money to conduct effective information surveillance reconnaissance over a broader area of operations. Both vehicles should be configured to have a back end similar to a pickup truck. Any of the payloads mentioned above would slide into the backend of either vehicle and constitute a capability. These vehicles could also be used to deliver and retrieve unmanned systems to their operating area. Another element that would be needed in this mix of stand-in force systems would be sea planes. The sea planes provide an unrestricted means of take-off and landing options to deliver logistical supplies and launching capabilities that are too big to be carried by the smaller stand-in force vehicle.

This is how we flip the cost risk back onto the adversary. The cost of one of these stand-in force vehicles would be insignificant compared to the adversary assets they could destroy. If we employ non-lethal systems onto these vehicles, we now have a capability our regional allies can use to thwart away non-compliant vessels from their territorial waterways without escalating the situation. Providing this non-lethal capability to our allies would be a very powerful political message that we are partners with them in providing protection of their territorial waters.

Flexibility, low cost, resiliency will be the key to answering the adversary challenge in the South China Sea. It will buy us time to advance other science and technology capabilities that will once again allow us to project power in any clime and place. We focus the technology in the payloads and keep the delivery of those capabilities simple.

Notes

1. Col Art Corbett, "Restoring the Initiative," (brief, Advance Naval Technology Exercise-Industry Day, Quantico, VA, November 2019).
2. Thomas G. Mahnken and Grace B. Kin, "Deterrence by Detection: A New Approach to Preventing Opportunistic Aggression," *Real Clear Defense*, (March 2020), available at <https://www.realcleardefense.com>.
3. B.A. Friedman and Olivia A. Garard, "Technology-Enabled Mission Command: Keeping up with the (John Paul) Joneses," *War on the Rocks*, (April 2020), available at <https://warontherocks.com>.
4. Information available at www.wigetworks.com.

