



IBM Center for
The Business of Government

Irregular Warfare at Sea:

A Case Study on National Defense Choices

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Introduction

National defense choices can leave a country vulnerable. Military organizations routinely deal with risk and trade-offs. But longer-term strategic defense choices—shaped by multiple factors including uncertainty about the future, the pressure of dominant current constituencies, and fiscal constraints that are difficult to “get right.” Once a conflict begins a new set of options and trades emerge but the uncertainties, the pressure of constituencies and resource constraints remain (even in a national level mobilization). In the United States, we are currently dealing with strategic choices that will propel the direction of the military and national readiness for the next 10-15 years. The story of the Battle of the Atlantic in the Second World War and the positioning with respect to submarine warfare in the inter-war years richly illustrates the types of challenges our nation must grapple with currently and offers some guideposts for approaching the toughest problems.

“We were criminally unprepared for the Battle in the Atlantic in 1939.”

Vice Admiral Sir Peter Gretton, British Royal Navy
Commenting on the inter-war response
to the German U-Boat challenge

The Department of Defense is working through a series of adjustments as the war in Iraq ended and the conflict in Afghanistan nears a point of far reduced commitment levels. A new National Military Strategy attempts to create room for new investment (even in the midst of budget cuts) by clearly identifying two emphasis areas to guide program development. On the one hand, the Department will continue an emphasis on counter-terrorism activities. On the opposite end of the spectrum will be development of capabilities to ensure U.S. forces cannot be denied access to any given operations area by advanced adversary capabilities—so called Anti-Access/Anti-Denial operations. The Department must necessarily give attention to a broad array of potential threats, but the intent is to step back from notions of any extended irregular warfare commitments represented in Iraq and Afghanistan over the past 10 years. At some level, these are all reasonable priorities and areas to economize, but the devil is in the details. In particular, a key concern must be the likelihood that our forces must be prepared for more irregular warfare conflicts, irrespective of our desire from a programmatic and budget perspective.

This article overviews the choices and strategies adopted by the British and then the Allied nations in response to the submarine threat in both the world wars and inter-war years. The content seems at first blush far from the contemporary challenges for U.S. decision-makers, but lessons emerge from this period in national security history that are pertinent today. So this piece first covers the two major submarine centered crises set in World Wars One and Two. Second, the three complexities for decision-makers are illuminated

using the anti-submarine case—uncertainties, constituencies, and constraints. Last, the paper derives some guideposts from the U-boat experience for current decision-makers.

A Tale of Two Crises

In both World War One and Two, the Allies were brought into severe crises by U-Boat attacks on merchant shipping. Britain was particularly vulnerable to this type of offensive given her dependency on foreign imports, with the war adding many additional shipping requirements. Speaking of the merchant ship sinkings in April of 1917, Britain's First Sea Lord, Sir John Jellicoe told the U.S. representative (Admiral Sims), "It is impossible for us to go on with the war if losses like this continue," said Jellicoe. Coming on the heels of devastating merchant shipping losses in February and March of 1917, Jellicoe wrote to the British War Cabinet:

"We are carrying on the war...as if we had the absolute command of the sea, whereas we have not such command or anything approaching it. It is quite true that we are masters of the situation so far as surface ships are concerned, but it must be realized – and realized at once – that this will be quite useless if the enemy's submarines paralyze, as they do now, our lines of communication."¹

In the first two and a half years of the war, the Germans sunk approximately five million tons of merchant shipping. In February of 1917, Germany declared "unrestricted" submarine warfare and went full tilt after ships carrying all forms of supply to Britain and the continent. Immediately the losses soared, with over a million tons of shipping lost in just two months—February and March—of 1917 compared to five million tons in two and a half years (prompting Admiral Jellicoe's characterization). To give a relative measure of the significance, Britain began the war with roughly twenty-one million tons of merchant shipping in service.

The Allies, by May 1917, began to institute new counter-measures with urgency. These included the use of the convoy system, airplane and airship escorts to sight the U-Boats, as well as emergent technology like hydrophones to hear U-Boats underwater. While these measures muted the losses, the cost was still severe. Had these measures not been in place, the Allies might not have prevailed and the shipping costs alone might have been 40% higher. That said, the WWI merchant shipping losses were horrible. By the end of war, the Allies lost almost 13 millions tons of shipping along with thousands of crewmembers to the U-Boat attacks. With the combined efforts of the Allies and the counter-measures, victory was achieved but at great cost.

Now fast forward to the Second World War. The Allies were yet again unprepared to deal with a sustained U-Boat campaign against merchant shipping. The crisis reached a peak in 1943, with the U-Boat threat again creating fear of Allied defeat. Winston Churchill

¹ Padfield, Peter, *War Beneath the Sea*, New York, John Wiley & Sons, 1995. p.9

wrote, “the only thing that really frightened me during the war was the U-boat peril.” In the spring of 1943, the losses reached such a high level that the Allies feared not being able to sustain operations while also supporting both the home front import needs of Britain and the USSR. Just looking at the problem of Britain, the magnitude of the threat becomes clearer. Prior to the war, Britain imported approximately 50 million tons per year of raw material and goods. Over the war years, these numbers were savaged. By 1940, the imports dropped to 42 million tons and the to 31 million by 1941. For 1942, despite major efforts to sustain viable levels, the number had plummeted to 23 million tons or less than half the pre-war levels. So, in the very window that the Allies were trying to surge supplies and manpower into Britain for the cross-channel invasion, shipping was falling to half the pre-war levels. As the official history recounts, the shortfall in shipping in 1943 was so severe as to reduce the number of US troops to be moved to Britain from 1.4 million down to 800,000.² At this pace, a cross-channel invasion even in 1944 would be in jeopardy—this in turn creating risk in the situation with the USSR on the eastern front. As context, the Soviet Union was fighting on the Eastern Front a desperate battle with the Nazis. The Soviet leader implored the Allies to take pressure off in 1942-43 by opening a second front. Allied leaders feared the Soviets would sue for peace and leave the remaining countries to fight Hitler’s forces. Delay of the invasion (which occurred at Normandy in June 1944) risked the whole enterprise. That is exactly what was at risk in 1942 and early 1943.

The chart below shows the cumulative loss of Allied tonnage in merchant shipping in World War II, with some comments on the phases of this fight. Notably, the tempo of the losses jumped sharply throughout 1942 as the German fleet swelled in numbers and operated successfully under the cloak of its Engima code. Radios and the effective encryption of the messages helped the Germans to locate convoys by establishing patrol lines of U-boats and once one made contact bringing the rest of the “wolfpack” into action by radio communication. The carnage was severe—to the point the cross-channel invasion of Europe would clearly have been in jeopardy if the tide had not turned. The red line on the chart illustrates the potential losses if the actual rate of sinkings in 1942 and early 1943 had continued. With a conservative measure, the Allies would have lost the equivalent of 24 Armored Divisions worth of shipping to Britain. In the European campaign, the US deployed 47 divisions (a mix of infantry and armor). The campaign finally turned in May 1943 as a new British commander, Admiral Horton, marshaled all the available forces and new capabilities to full effect. Aided by code-breaking against German communications but founded on aggressive convoy escort tactics supplemented with long-range radar-equipped aircraft, the Allies turned the tide decisively.

² Leighton, Richard and Coakley, Robert, *Global Logistics and Strategy: 1940-43*, Washington, DC, Center for Military History, 1955. p. 690



Reflecting on the severity of these two crises, it is not unreasonable to ask “why were the Allies caught so off-guard in WWII given the experience in the First World War?” Plumbing the historical record reveals the interplay of timeless dynamics influence on national defense decision-making. These same dynamics impact today’s decision-makers, grappling with challenging issues and seeking a strategy that minimizes risk. This issue of the submarine in the world wars provides some insight that is pertinent now.

Uncertainty Complicates Everything

Uncertainty on future defense challenges is an ever-present problem. As U.S. Army Major General H.R. McMaster recently stated, “We have a perfect record in predicting future wars—right? ... And that record is 0%...”³ McMaster is a tremendously experienced operational leader and also an accomplished scholar holding a PhD in history. He has thought deeply about national security problems and his comment perfectly captures the challenge that uncertainty poses for national security policy-makers and force planners. We do not have a great record in predicting, so how do planners account for the uncertainty?

³ Feith, David, “H.R. McMaster: The Warrior’s Eye View of Afghanistan.” Wall Street Journal, May 11, 2012

People and companies buy insurance in various forms to protect from dangerous, tragic, or debilitating events into the future. For our homes, vehicles, our lives and personal health, companies can apply the actuarial sciences to calculate the likelihood of different occurrences in each category and put a price on insurance at various levels. While complex, the problems are bounded and many of these issues develop stable statistical patterns supporting solid forecasting at the aggregate level. Spending on insurance is a mechanism for companies and people to account for the uncertainties with significant consequences.

Defense problems for a global leader are more complex and both the uncertainties and consequences are high. Given the gravity of the Allied situation under the U-Boat attacks in WWI, it is reasonable to think that submarine warfare might have received prominent treatment in subsequent war planning. In the course of events, many aspects of submarine warfare were ignored on the Allied side thereby seeding a problem that would come to full bloom early in the next world war. Before evaluating where the decision-making went awry, it is useful to set the context and explore some of the uncertainties of the day. This is important both to fairly understand the environment that shaped the choices and to illuminate the constraints.

At the macro level, there was substantial dissonance around the “future of war” and the prospects for peace. World War One was enormously disorienting. While there were clearly a number of historical dynamics in Europe driving the outbreak of the war, prior to August 1914 some authentically hoped for peace and saw war as a yesteryear issue. As context for the times, in 1909 Norman Angell (who subsequently won the Nobel Peace Prize many years later) authored a book entitled *The Great Illusion*. His thesis was that the European economies were so inter-connected and interdependent that militaristic adventures were no longer viable. Clearly Angell was wrong with respect the possibility of war. In fact what unfolded was almost unimaginably terrible—including the 10 million deaths of military personnel of the warring countries alone. Somewhat oddly, given the clear inaccuracy of Angell’s earlier assertions, The Great War was dubbed the *war to end all war* in recognition of the devastation wrought. Some also used the phrase mockingly, arguing there was no effective means to prevent war. The point is that before the war it was literally unimaginable to some and coming out of it with others thinking it inconceivable that such a thing could reoccur. This reflects our relatively poor capacity to predict these things well and the weight we should give to uncertainty. It is not that no one got it right, but rather that big divergences between political camps might be the expected situation when confronting these longer-term planning decisions.

In this environment and having survived conflict, British decision-makers now had to set a national security course including some strategy (implied and/or explicit) regarding the future of submarine warfare. Commentators and analysts often tritely throw-around the bromide that “we always prepare to fight the last war.” It is commonly heard in defense discussion, for example from a very conservative commentator, “In a fast-changing world,

a common mistake is to keep fighting the last war.”⁴ On the flip side, there seems a collective inability to grasp that for some it appears desirable to run away from the “last war” and hope that combat will not occur again in anything resembling the last form. After World War I, given all the uncertainties around the future, British leaders chose to envision a future where submarine warfare on merchant shipping would not again be a dominant threat. In other words, *they were hardly planning to refight the last war*. Britain hoped to legally prohibit future submarine warfare against merchant shipping going so far as to advocate the abolition of submarines in 1932 and 1935.⁵ This strategy was coupled with arms control treat initiatives oriented to limiting the overall growth of naval forces and maintaining some general proportions between the major countries. Imagine the setting for discussions on defense investments in this time as some argued that the entire problem was moot—to be dealt with legally—while others take a more sober view. This is uncertainty. When the positions are so divergent, how does planning occur?

Even if leaders could push aside the prospect of abolishing submarines, there was still uncertainty about the utility of U-boats and the like moving forward. Other countries, including Japan and United States, were conceptualizing the use of submarines in the context of major fleet engagements (like the Battle of Jutland in WWI) but not against merchant shipping. Meanwhile, others questioned whether emergent technologies had negated or severely diminished the submarine’s rising role. After the First World War, Britain had made strides in what we have come to know as “sonar” in the United States. Sonar is the ability to send a sound wave underwater and process the echo return to plot the direction and distance of the target. Some felt that this technology, along with the continued development of hydrophones, would render submarines ineffective by eliminating their ability to hide. Abolishment, legal restrictions, the rise of sonar, doubts that a country would repeat such heinous attacks on merchant shipping—all these factors created enough uncertainty to make investments in and focus on submarines an element of the national security portfolio on the margins.

No matter what might be hoped for, there was in fact a clear possibility of future war so Britain prepared for that broad possibility. As an inherently maritime nation, Britain had to consider the possibility of significant war at sea. Here the British tended to project their own mores (and the tactical thinking of others like Japan and the US) on submarine employment and determined it unlikely that Germany would repeat its merchant shipping attack stratagem from WWI. This was a crucial misstep in dealing with uncertainty. Even if the Nazi’s had some restraint on merchant shipping attacks at the outset—in effect holding to some “fair fight” posture—decision-makers might have considered whether those restraints would hold under extreme duress. If Britain was planning to repeat a blockade of Germany using surface forces, why would Royal Navy leaders not at least consider a more aggressive German response? There was no rule that obliged the German Navy to meet the Royal Navy on its terms—some fairly umpired boxing match. Last, while the technologies (most notably sonar or “ASDIC” in British terms) seemingly made the submarine more vulnerable, how certain was this assessment and perception?

⁴ Coulter, Ann, “Fighting the Last War, “ chat.anncoulter.com, April 11, 2012

⁵ Padfield, p. 18

Across the board, optimistic planning assumptions were taken on these areas of uncertainty. Regarding sonar, British naval leaders failed to account for the reality that approximately half the submarine attacks against merchant ships occurred from the surface at night.⁶ In these conditions, the sonar-like technologies of the time were ineffective. They could not sort out surface targets. Meanwhile, even though Britain knew Germany was rebuilding the submarine fleet during the 1930s, the leaders could not bring themselves to envision another onslaught against cargo shipping. Instead, British naval attention was centered on fleet actions—naval vessels fighting naval vessels in the conventional maritime tradition. These miscalculations and failure to account for the uncertain but possible was to hurt Britain badly over years to come.

Leaders cannot allow the delusion of accurately predicting the actual threats, but must build forces able to handle a range of problems and definitely the most likely ones. As regards dealing with these uncertainties, there are two principles that warrant consideration:

- Don't let "unpleasant" prospects be pushed out of consideration. The adversary "gets a choice" around the nature of the future fight. Wargames, exercises, and training should not simply reflect the environments most favorable to our capabilities.
- Take great care to think through the prospects of emergent technologies or unconventional operational approaches (U-boat attacks on merchant shipping). This is especially true where there is an overwhelming advantage (i.e. Royal Navy versus German Navy surface fleets)

Beware the Powerful Constituencies

In the face of emergent, but uncertain, national security threats potent advocates of the "status quo" can effectively discount or suppress effective preparations for and response to the challenge because doing so can rob resources for existing efforts. This struggle played out in phases around the British response to the submarine. For certain, some leaders "got it right" in each phase, but there was typically a struggle against some dominant line of thinking that under-estimated the submarine threat or subordinated the best anti-submarine warfare efforts to specious or less effective ones that held to various forms of "professional military judgment."

The operational and programmatic response in World War Two illustrates the challenge well. Unlike the First World War, recognition of submarine threat came early on but the struggle was around marshaling appropriate anti-submarine resources and applying them in tactics and operations that would yield greatest result. The basic dynamics of the anti-submarine fight set the context for understanding the struggle with dominant

⁶ Padfield, p. 24

constituencies to get to the good solution, so the background will quickly be covered to set the table.

The big challenge in the open ocean is finding the target, whether an individual U-boat, a merchant ship, or a merchant convoy. Finding the target is key. U-boats would array in a patrol line over likely shipping routes, sometimes armed with insight into intercepted British communications indicating the convoy route. When a convoy was sighted, the U-boat commander with visual contact would radio colleagues and then serve as a “beacon.” On the surface, submarines were faster than merchant ships generally. So, they would trail or close with convoys on the surface during the day and then attack on the surface at night. When submerged, the U-boat slowed down markedly and the conditions for the crew could be very stressing. U-boats could only remain submerged for a finite time without exhausting all the oxygen and suffocating the crew. The question for the Allies was how to counter this threat and the attack on merchantmen.

In WWII, the two primary battles were around the types of operations to be conducted and the relative importance or priority of strategic bombing (with a huge constituency) and anti-submarine warfare (with a modest following early in the war). Those working the anti-submarine mission clamored for long-range aircraft to detect submarines, attack them, and worst case force them underwater. If aircraft were unsuccessful in the immediate attack on a U-boat, they could at least effectively pin or fix the submarine until surface units (i.e. destroyers) closed to take up the attack. But, many British military and civilian leaders were fixated on strategic bombing of Germany and even more generally were fixated on offensive activity. Reassigning long-range aircraft to anti-submarine patrols in support of convoys was viewed as anathema to the offensive spirit. The strategic bombing advocacy group was very strong and included Winston Churchill himself, making it very difficult to win the fight for long-range aircraft until the situation reached potentially catastrophic proportions in the spring of 1943. As analysis revealed during the war and certainly afterwards, the impact of strategic bombing was dubious yet commanded thousands of airplanes. The dominant constituency of Air Force leaders and political leaders, like Churchill, were adamant and dogmatic about massing these aviation assets on German industry while dismissing the anti-submarine mission as a distraction. Meanwhile, U-boats sent merchantmen to the bottom in the so-called “Atlantic gap” where the short-ranged aircraft allotted to the anti-sub mission could not provide aerial escort coverage. Not until May 1943 were very long-range aircraft finally assigned to close this hole in the defense, forming a pivot point in the battle. On another front, there was a battle for escort-related surface vessels and how they would be used. Some wanted destroyers and other converted escorts to accompany the convoys. Even these requests were subordinated to other needs. Instead, leaders—including Winston Churchill—advocated dubious alternatives like the “Q-ships,” which were decoy merchant ships with hidden guns sailing the convoy routes as “bait.” These were intended to roam the seas and coax the U-boat into unexpected fights. As in WWI, the Q-ship results were meager and ran counter to escort-focused alternative. Again, by the spring of 1943, Q-ships and other “offensive” notions were finally countered and a body of thinking and leaders coalesced around the convoy escort system that proved so successful. The intervening period of January 1942 to May 1943—while the various constituencies battled for resources—cost the Allies

almost 7.5 million tons of shipping (or the rough equivalent of 30 armored divisions of shipping).

WWI manifested similar conflicts between a dominant line of thinking reflecting surface warfare concepts and evolving demands of anti-submarine warfare. In this instance, submarine warfare was so new that it is difficult to critique reasonably the time required to adapt some of the techniques. That said, the adoption of a convoy system turned out to be the anti-submarine method with greatest impact but getting to this required dealing with a dominant line of thought which held that convoys were too complicated because of the number of ships and less desirable than an hunt-kill strategy. As a useful lesson in dealing with a dominant constituency—represented by the Admiralty of the Royal Navy—three members of the British government pulled together an analysis of the actual situation that stood the problem on its head and prompted strategic discussion that led to the convoy system adoption. Specifically, two skeptical Royal Navy officers and one civil servant in the Ministry of Shipping performed a detailed analysis testing whether the weekly customs data tracking the number of port arrivals/departures was mis-leading decision-makers on the scope of the problem. Since early in the war, customs figures were reported weekly on these port activities and typically number over 5,000 per week. The Admiralty would couple customs data with information on the weekly number of sinkings to create a “Weekly Appreciation” of the U-boat situation.⁷ As early as April of 1915, this led Winston Churchill to declare is “patent to the whole world” that the U-boats were not winning as the Germans sunk 23 vessels while in the same month there were over 6,000 port arrivals/departures. The problem the three analysts uncovered in the data was that most of the arrivals/departures were of small vessels and many of the ships were hitting multiple ports or going out and back multiple times per week driving a simple tally like this very high. The number of actual ocean-going vessels capable of trans-Atlantic shipping (in other words, the ones critical to the supply and import crisis) was much smaller. As this came to light in 1917, there was immediate pressure to shift to convoy operations, despite the historical and professional view of the “high admirals” that convoys were not viable and not helpful.⁸ As Jan Beemer points out in her excellent analysis, the two naval officers who “bucked the system” (or the dominant constituency) at their career peril and both were threatened with sanction and highly undesirable assignments before cooler heads prevailed.⁹

The examples above for both world wars illustrate the operational challenges of persuading the dominant groups, but as important is shaping this thinking longer-term. From early in the 20th century through the first years of World War II, the British Royal Navy kept issues associated with submarines on the margin from a development, planning, and training perspective. This is not to say there was an absence of activity—that would be untrue and is not the point of most historians. Rather, submarines were not the focus in naval thinking and operations. Ironically, U-boats would pose the primary

⁷ Beemer, Jan, *Defeating the U-boat: Inventing Anti-Submarine Warfare* Naval War College Press. 2010. p. 38.

⁸ Beemer, p. 48-49.

⁹ Beemer, p. 49.

naval threat in the Atlantic in both wars. British naval leaders sharply subordinated the submarine issue to everything associated with future major surface fleet actions, basically planning to replicate the type of action at Jutland between German and British capital ships. As the leading historian of this issue has outlined, this was in no small measure a function of the surface warfare mentality of the Royal Navy—a strong defense constituency.¹⁰ As the historian Robert Massie laid out so clearly, the British naval leaders as a whole were slow to let go of the majesty of sailing ships to adopt steam power, while acknowledging the need for armor they prized more the aesthetics of their ships even to the point of compromising performance, and moved glacially to the implications of long-range gunnery.¹¹ These transitions unfolded slowly over the 19th century. An officer was more likely to be promoted for fitting into the culture and keeping a smart, tidy ship than for scoring well in long-range gunnery and maneuvers. As one senior officer famously (or infamously) said in 1901, the idea of submarine warfare was considered “underhand, unfair, and damned un-English.”¹² Despite the severe lashing the British took at the hands of the U-Boats, the perspective of the Royal Navy was that submarine action was something that could be controlled.¹³ During the inter-war years, the dominant constituency in the Royal Navy remained focused on major surface actions of the fleet in the great tradition of Trafalgar, notwithstanding marginal role this type of conflict played in WWI naval operations. More recent authors, giving more the benefit of the doubt to the Admiralty, argue this focus on large capital ships was less a fixation than technical questions about the viability of submarine and carriers coupled with financial constraints.¹⁴ In either event, the larger capital ships remained the focus.

A few principles emerge when considering the impact of the dominant, competing constituencies relative to the British anti-submarine posture:

- Respect “professional military judgment” but take special care to ensure analysis supports positions in times of technology and operational change.
- Create environments to support discussion of alternative views and accept constructive intellectual conflict as necessary for good decision-making. Too much consensus might be considered a reliable indicator to press more deeply into an issue area.
- Because a nation views a form of conflict as wrong, infeasible (because of global impact), or unproven, does not mean countries will hold to the same views. Account for the unconventional or irregular in planning. This is especially true where the one country has overpowering capability in classes of warfare. Expect, or at least allow for, the adversary to choose a different path.

¹⁰ Padfield, pp. 18, 26

¹¹ Massie, Robert, *Dreadnought*, Ballantine Books. New York. 1991. pp. 396-400.

¹² Marder, A.J., *Fear God and Dread Nought*, vol. I (Oxford UP, 1961), p.333

¹³ Padfield, p. 17-18

¹⁴ Moretz, Joseph, *The Royal Navy and the Capital Ship in the Interwar Period*. London: Frank Cass. 2002

Navigating Fiscal and Resource Constraints

Vice Admiral Sir Peter Gretton, British Royal Navy, declared “we were criminally unprepared for the Battle in the Atlantic in 1939.” Gretton is characterized as one of the great convoy escort commanders to emerge from WWII. His critique is harsh. Some have offered a rebuttal of sorts that there were insufficient resources to address the submarine threat in the inter-war years. The historian H.P. Wilmott offers such a view arguing the 1930s were overall a period of economic decline and not a period where investments in submarine and anti-submarine efforts might reasonably have prospered.¹⁵ Striking or finding a balance between these two viewpoints (Gretton and Wilmott) is instructive as there are always constraints on national security capabilities—fiscal, industrial, operational. No country desires to be “criminally unprepared” or to overstretch in peacetime.

In any event, by the end of WWI both the Allies and especially Germany were hauling backbreaking debt. During the 1920s debt especially plagued Germany and ultimately financial problems embroiled Europe and the United States in the Great Depression. Any critique of the Royal Navy’s decisions on the submarine threat must be viewed through that prism. Once the Second World War began, the competition was less financial and more industrial and operational. Meaning, the anti-submarine warfare community had to compete for new assets coming off the production line as well as resources generally available to the military leaders (i.e. the long-range bombers described in the previous section). At no point in the journey, whether the inter-war years or the Second World War were resources flush relative to the needs. There were always more demands than wherewithal either financially, industrially or operationally. Decision-makers never really escape these constraints—they simply take different levels of severity.

One way to balance the viewpoints is to closely evaluate what happened in the early period of the second war when resources were tight, but attention was urgently coming onto the U-boat problem. In this period, focus immediately fell on tactical issues around how to organize and conduct a convoy escort to greatest effect. On one important note, leaders quickly found there were few documented lessons learned and little analysis available to review on World War I convoy and anti-submarine operations. Instead, learning from the World War I experience had to be developed as operations were now ongoing. Specific techniques were developed in response to U-boat attack to maximize the likelihood of quick contact and attack on the submarine. Technological gaps came into view and capabilities like radar and sonar were put into action operationally. The difficulty in finding submarines was well-established in the First World War, the second war required frenetic and accelerated development of solutions focus on “finding and fixing” submarines including: metric and centimetric surface radars, airborne radars, lights to accompany radar to close the “radar blind spot,” direction finding, and code breaking technologies. Problems were uncovered and addressed. For example, the limitation of sonar against surface targets immediately became an issue along with the fact that sonar had a blind spot that impaired the effective use of depth charges. Many of these issues

¹⁵ Padfield, p. 25 Padfield reviews Wilmott’s analysis of the inter-war years.

might have fairly come out in more balanced exercise and testing activity during the inter-war years. Why did they not? It appears the primary reason is that if submarines played a role at all it was in the context of fleet surface actions. Convoy-related work was not trained, gaps were not identified or understood, and technologies were not incubated to the extent possible. Consistent with Gretton's viewpoint, this left the Royal Navy unprepared largely to deal with the U-boat campaigns at the outset. These capabilities were developed during the course of the war, but only at great operational cost measured in ships sunk, tonnage lost, and casualties.

Several principles emerge regarding the constraints as well:

- Ensure critical capabilities are identified and cultivated even if constraints require foregoing major investments for large-scale force development. Ensuring the basic technological components were in place to find submarines and was a priority even if hundreds of destroyers and long-range bombers were beyond financial reach.
- Given scarce resources, ensure there is rigorous analysis to support the decisions and the strategies. Too often, perceptions of complex problems are misleading. Analyze previous operations, run experiments and analyze the results, milk every bit of insight from exercises. Ensure lessons learned from early conflicts are immediately available to help prioritize wartime acquisitions.

Contemporary Issues for the United States

Clearly the United States must deal with the national debt situation, with the question revolving both around the timeframe for a solution, what areas to cut, and how much revenue might be increased. It seems inescapable that a portion of spending reductions, potentially very large, will fall on the Department of Defense. As the Army Chief of Staff has clearly articulated, some of this is natural as the nation winds down from peak wartime commitments in Afghanistan and Iraq. Some of the potential cuts would slice much deeper. Given some of the lessons from the submarine and anti-submarine experience, what are the tough issues to ensure U.S. policy-makers keep in view?

- 1) **Expect unconventional or irregular responses.** The United States has a dominating military force in any form of conventional conflict. Our maritime, air, and land forces have no peer. Consequently, like Germany's naval response to the Royal Navy's stifling blockade, we should expect rather than be surprised by unconventional or irregular responses to our military force. While we often think of Al Qaeda and associated groups when considering irregular or unconventional operations, but this is a limiting framework. Countries confronted with U.S. conventional military might should be expected to respond, at least in part, with irregular stratagems and capabilities.
- 2) **Ensure irregular adversary responses are included in all major planning activities.** Planning the military force around scenarios that do not include heavy irregular warfare components should raise red flags to decision-makers. As an

example, if the most unfortunate events unfold and the United States would have to engage in Iran, would we expect irregular warfare behavior or would we expect the Iranians to combat our forces only in conventional terms? The answer should be instant—they will fight us with a heavy bent to irregular warfare. This is a country that has long-standing ties to Hezbollah in Lebanon, helped organize operations and insurgent activities in Iraq, provided advanced forms of improvised explosive devices to Iraqi insurgents, and has engaged in Afghanistan. Most recently, press reports point directly to Iranian involvement in organizing irregular groups of foreign fighters in Syria. The U.S. should expect heavy irregular force responses in Iran if ever the situation evolves where U.S. ground forces must be projected into that country. What do the scenarios include? Decision-makers should tune to that issue just as leaders should have ensured submarines were not ignored.

- 3) **Integrate cyber attacks - including those the U.S. would deem inappropriate – into combined arms attacks.** Just as submarines were a rapidly evolving and radically new force at the beginning of the 20th century, cyber operations represent a similarly new but maybe even more threatening cloud on the horizon. Cyber attacks open a realistic prospect to strike the U.S. at home. While this is a subject prone to breathless arm-waving, prudent leaders will ensure there are robust exercises, wargames and analytics underway to anticipate how a *country* would employ cyber capabilities to strike at our economy and critical infrastructure. If a country were purposefully planning a response to U.S. military operations abroad by coming to our homeland, how might they integrate cyber operations and special operations to create major disruptions and even strategic effects in the homeland? How would such operations impact our scenarios for overseas involvement? For example, we might envision relatively short overseas operations in an attempt to deal “surgically” with some major problem, only to find the response is one that strikes at home. How would such attacks change our operations abroad?
- 4) **Focus on the ability to find the irregular targets of the future.** Just as a key for the anti-submarine efforts was developing a complex capable of finding the U-boats, today’s irregular or unconventional threats are difficult to detect. The wars over the past ten years have driven useful changes in the intelligence community and complex. We must not lose these gains. We might also ask, are these enough? What remains to be done to better position our military forces and all those involved in protecting the nation to detect and deal with the threats of the future? As leaders navigate the inescapable reductions in the national security environment, care should be taken especially with respect to preserving and even enhancing the overall intelligence posture of the country.

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Prior to joining IBM, Mr. Strickland co- founded Edge Consulting, a consulting firm that achieved national recognition for pioneering work in the application of operations research methods and IT to quantify the value of intelligence. He helped lead Edge Consulting from a start-up to significant annual growth, culminating in its acquisition by National Interest Security Company.

Mr. Strickland was a career intelligence officer with 24 years experience in the Central Intelligence Agency's Senior Intelligence Service and the U.S. Marine Corps, where he led programs focused on developing innovative solutions and methodologies to measure and analyze mission performance. In recognition of his accomplishments, the CIA Director awarded him with the National Intelligence Medal of Achievement. Mr. Strickland also received the National Reconnaissance Office's Medals of Distinguished and Superior Service. Mr. Strickland is the co-creator of "Edge Methods," a unique blend of consulting, scientific methods, and IT used to assess the value of information from empirical data. Edge Methods has been used to advise national security principals and commanders on the optimal use of billions of dollars of operational and fiscal intelligence resources. He is a recognized teacher, public speaker, and published author. He holds a BA in Business Management, MS in Technology Management, and the CIO University's Certificate in Federal Executive Competencies.



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