MANAGING DEFENSE PROCUREMENT: THE ROLE OF UNITED STATES SPECIAL OPERATIONS COMMAND, CONGRESS, AND PRIVATE INDUSTRY

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Abstract

The Nunn-Cohen Amendment to the 1986 Goldwater-Nichols Defense Reorganization Act created the United States Special Operations Command, or USSOCOM. This structural change to the Department of Defense pulled Special Operations Forces, or SOF, out from underneath the purview of the military services and provided it with an institutional organization that could advocate for SOF operational concerns and resource requirements within the defense bureaucracy at the national policy level. Congress provided USSOCOM with unique authorities and resources that enabled it to develop and procure special operations peculiar capabilities within the defense structure that is organized around the military services.

Resource Based Theory, a strategic management theory, is introduced into public management as an alternative to traditional capital investment theories in the context of resource constraints. The study tests Resource Based Theory's ability as an analytical framework to explain USSOCOM's bureaucratic actions while developing and procuring Special Operations peculiar capabilities. It examines the case of the dry combatant submersible and the relationship between USSOCOM, Naval Special Warfare, the maritime Special Operations Forces component, the United States Navy, the Submarine Force naval component, the Department of Defense (DoD), Congress and the defense industry.

This study finds that the distinctive competencies of service components linked together across organizational lines serve as the source of competitive advantage. They also serve as potential sources of cooperation, vice competition, in resource allocation. Conversely, the higher level objectives of the principal organizational stake holders inform prioritization of resources and generate organizational conflict within DoD. The study also illustrates the effect of organizational innovation within DoD. USSOCOM expands technological choice and expands the industrial base of the defense industry. Finally, although the military services continue to dominate the defense establishment, when USSOCOM focuses on a distinctive competency and intervenes across the entire decision making process it is effective at leveraging its unique authorities to develop and procure special operations peculiar capabilities.

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This dissertation is dedicated my family, my students, and the warriors of the United States Navy and the United States Special Operations Forces. You inspired me to complete this project.

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Chapter One: Introduction

This study focuses on a fundamental management and organizational issue: whether and how the creation of a new organization, the United States Special Operations Command (USSOCOM), has solved the problem of ensuring that Special Operation Forces receive the technologies and equipment they need to do their jobs.

Answering this enquiry requires a discussion of the USSOCOM's criteria for success, the special powers given to USSOCOM and their success in using them, and the special roles played by the Department of Defense, the U.S. Congress, and private enterprise in the defense procurement process. Moreover, the implications for the findings of this research are important not only to Special Operations Forces, the U.S. Department of Defense, and the private industries that work with it; they are also important in considering which strategy—technological innovation or technological adaptation—is better suited to producing the equipment and technologies needed for future national defense needs.

This introduction begins first with a discussion of the context and problem. Second, the dissertation research questions are presented and the justifications and implications of the research are discussed. Third, the research design and methodology are presented. Fourth, three platforms are discussed. Fifth, hypotheses are presented. Sixth, a brief introduction to the literature is presented. Finally, the outline of the study is presented.

The Context and Problem

Historically, the United States (U.S.) Army, Air Force, and Navy integrated their Special Operations Forces (SOF) into their own forces. Since SOF were considered simply a small supporting element of conventional forces rather than the main effort, the result was that SOF in each service were undersupplied and under-resourced by their own services.[1]

The United States Special Operations Command (USSOCOM) was created in 1987 as a result of U.S. Congressional intervention in the Department of Defense to solve this problem of under-resourcing and in response to some high-profile SOF failures, including the botched 1979 Iranian hostage rescue. [2] As a result, the U.S. Congress created USSOCOM to be independent of the U.S. Army, Air Force, Navy, and Marine Corps in two important ways: it has its own budgetary authorities in the DoD budget; and USSOCOM has its own acquisition authorities, which allow it develop and buy Special Operations-peculiar equipment, supplies, and services.[3]

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[1] Susan Marquis, *Unconventional Warfare: Rebuilding U.S. Special Operations Forces* (Washington, D.C.: Brookings Institution Press, 1997), 208-226. Thomas K. Adams, *US Special Operations Forces in Action: The Challenge of Unconventional Warfare* (New York, NY: Frank Cass Publishers, 1998), 172-209.

[2] James R. Locher III, *Victory on the Potomac: The Goldwater-Nichols Act Unifies the Pentagon* (College Station, TX: Texas A&M University Press, 2002).

[3] This authority is provided through a specific Major Force Program (MFP-11) and acquisition executive language. See U.S. Congress, Unified Combatant Command for Special Operations Forces, U.S. Code, Title 10, Subtitle A, Part 1, Chapter 6, Section 167, Washington, DC, 1986, available at http://www.law.cornell.edu/uscode/html/uscode10/usc_sec_10_00000167----000-.html (Accessed September 22, 2009).

Given this background, the two central research questions of this dissertation are: *How has the United States Special Operations Command leveraged its unique authority to influence the Department of Defense to develop and procure Special Operations peculiar equipment? How, when and why do the U.S. Congress and private industry intervene in the United States Operations Command procurement process?*

It would seem at first glance that these special administrative and budgeting authorities would provide USSOCOM with all of the leverage required to create the technologies and equipment that SOF need. However, USSOCOM faces three significant challenges: first, it fits into a much older and more complicated bureaucratic system that dates back to World War II and eventually USSOCOM must justify its requirements to the programmatic gatekeepers in that system; second, the U.S. Congress can and does intervene directly in USSOCOM programs; and third, USSOCOM relies on the private sector to develop the new technologies it needs, which makes the issue of private sector *innovation* versus *adaptation* very important for USSOCOM. As discussed below, each of these challenges affects the ability of USSOCOM to use its special authorities to create the equipment and technologies it needs.

In order to understand the challenges facing USSOCOM, it is important to first understand the system in which it was placed. The creation of the National Security Act of 1947 altered the power structure of the military instrument of national power after World War II. The 1947 Act and the series of agreements and amendments to the law that culminated with the 1958 Defense

Reorganization Act reasserted the role of the legislative branch of government in defense issues, reduced the power of the military services, and reinforced civilian control over both military operations and military service budgets to include procurement.[4] Throughout World War II and the Cold War, the nation's industrial base was structured for wartime production in order to leverage its scale of production and ability to produce rapid technological advancement. As a result, a strong connection between the Navy, industry and the U.S. Congress, often called the Iron Triangle, developed.[5]

The U.S. Congress intervened in this system via the Goldwater Nichols Department of Defense Reorganization Act of 1986. As noted above, this legislation forced the Department of Defense to reorganize. "On November 14, 1986, Public Law 99-661, known as the Nunn-Cohen amendment, was passed"[6] and included the creation of the United States Special Operations Command (USSOCOM) to ensure advocacy for Special Operations Forces. Currently, just like the military services such as the U.S. Navy, USSOCOM selects, trains, and equips dedicated Special Operations Forces and establishes doctrine for their employment. The equipping task includes the development of "Special Operations peculiar" capabilities. To enable this task, Congress granted the Commander of

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[4] David Jablonski, "Eisenhower and the Origins of Unified Command," *Joint Forces Quarterly* 23 (Winter, 2000): 24-31. Also see D. Robert Worley, "A Short History of Defense Reform," in *Shaping U.S. Military Forces: Revolution or Relevance in a Post-Cold War World* (Westport, CT: Praeger Security International, 2006).
[5] Carl E. Weir, *Forged in War: The Naval-Industrial Complex and American Submarine Construction, 1940-1961,* (Washington D.C.: Naval Historical Center, 1993). Also note that for the purposes of this study, the broader context of the defense establishment includes the Department of Defense, Congress and industry.
[6] Marquis, 145.

USSOCOM Acquisition Executive Authority and provided him with a dedicated funding source in the form of Major Force Program – 11.[7]

However, although USSOCOM can choose to develop and fund its own programs, it is still subject to Department of Defense and congressional oversight. This is the first obstacle that USSOCOM must negotiate in order to develop its equipment. First and foremost, the commander of USSOCOM must advocate for its requirements alongside the other services in the DoD review process. By means of comparison, the U.S. Army, Air Force, Navy, and Marine Corps must acquire their equipment via a single rigid acquisition system in which all their requests are evaluated together, based on rational design trade-offs and compared with alternatives from across all the services.[8] As a result, when USSOCOM requirements are finally compared to those of the other services, USSOCOM has to justify its requirements against those of much larger service-wide requirements.[9] Thus, the first questions in this dissertation are: When and why is USSOCOM successful in getting its programs through this first obstacle? And, considering the broader research questions, is success at this point in the process

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[7] See footnotes 2 and 3.

[8] A foundational source is Edward S. Quade and William I Boucher, eds., *Systems Analysis and Policy Planning* (New York, NY: Elsevier Publishing, 1968). Also see Peter deLeon, "The Influence of Analysis on Defense Planning," in *Policy Sciences* 20, No. 2 (June 1987): 105-128. Also see CDR Raymond E. Sullivan Jr., USN (ed.), *Resource Allocation: The Formal Process, 8th Edition*, (Newport, RI: National Security Decision Making Department, U.S. Naval War College, 2002). Charles J. Hitch, "Management Problems of Large Organizations," *Operations Research* 44, No. 2 (Mar.-Apr., 1996): 258-259.

[9] General purpose forces and Special Operations Forces procurement budgets are debated and rationalized by the Joint Staff and the Office of the Secretary of Defense in the weapons procurement process and presented to Congress as part of the Executive Branch of Governments budget submission.

linked to the ability to develop a successful program, judged by its own criteria of success?

Second, these requirements are presented to Congress, which may also intervene in the process by advocating for or against certain USSOCOM programs. Congressional intervention can mean that USSOCOM programs that were not supported at the first service-review level described above may still be championed directly by Congress. This potential for Congressional intervention generates two further questions: When and why does Congress intervene, and what is the linkage to the ability for USSOCOM to develop a successful program?

The third stage in creating USSOCOM technology and equipment focuses on the role of the private sector. In the United States, private industry has historically maintained a strong relationship with the military services, the Navy in particular, because private industry has possessed the capacity to develop technologies and build military capabilities. The defense industry is composed of a two-tier system in which large contractors subcontract specialized work to specialized second tier companies.[10] These private companies, first and second tier contractors, now not only make the components for defense equipment and technology but, because of post-Cold War changes in the relationship between the Department of Defense and the private sector, are often responsible for the research and development of new technologies too. This is a shift from the Cold War system where the Department of Defense did its own research and

[10] For the landmark study on the defense industry, see Merton J. Peck and F. M. Scherer, *The Weapons Acquisition Research Project* (Cambridge, MA: Harvard Business School, 1964). Also see Jacques S. Gansler, *The Defense Industry* (Cambridge, MA: MIT Press, 1980).

development or sponsored industry to conduct the research. Private industry's incentive was based on winning contracts to manufacture the equipment. Among other things, moving the responsibility for research and development onto the private sector gives them a powerful role in the outcome of USSOCOM's procurement programs. Thus, understanding the role of the private sector is a vital third dimension to understanding when and how USSOCOM is successful in leveraging its unique authorities to develop the technology and equipment it needs.

In this case there are two approaches to providing USSOCOM the equipment it needs: innovation vs. adaptation. In the first case, the private sector simply agrees to develop the new technologies that USSOCOM needs (and that either the other military services and/or U.S. Congress agrees need to be developed) using innovation. Simply put, in this scenario, the private sector creates new technologies to fulfill USSOCOM's needs.

However, with the second approach, the private sector plays a more active role in shaping the technological solution to USSOCOM's needs by offering to adapt their own technologies to solve USSOCOM's operational problems. Simply put, private sector adaptation creates the technological solutions USSOCOM needs. These two approaches thus raise the question: Which of these processes lead to successful creation of the new equipment and technologies that SOF operators need?

The Research Questions

Although USSOCOM was created more than twenty years ago, there have been few studies on how this new system is working. Government studies tend to focus narrowly on USSOCOM's pricing and contracting performance.[11] However, scholars have questioned the role and effectiveness of USSOCOM and have introduced ideas ranging from dissolution to re-organization of USSOCOM.[12] Moreover, policy makers, practitioners and scholars alike tend to broaden the discussion of SOF capabilities to a discussion on how to use current SOF capabilities to confront the challenges of the current strategic environment.[13] Yet SOF continues to struggle to procure the capabilities to fill operational requirements.

As discussed in the first section, the two central research questions of this dissertation are: *How has the United States Special Operations Command leveraged its unique authority to influence the Department of Defense to develop*

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[11] US Government Accountability Office, *GAO-07-620: Report to the Subcommittee on Emerging Threats and Capabilities, Committee on Armed Services, U.S. Senate, Defense Acquisitions: An Analysis of the Special Operations Command's Management of Weapons System Programs* (Washington, DC: Government Accountability Office, 2007). Also see Inspector General, US Department of Defense, *Price Reasonableness Determinations for Contracts Awarded by the U.S. Special Operations Command*, Report No. D-2009-102, September 18, 2009. Also see Government Accountability Office, *Report to the Subcommittee on Emerging Threats and Capabilities, Committee on Armed Services, U.S. Senate: Defense Acquisitions: Success of Advanced SEAL Delivery System Hinges on Establishing a Sound Contracting Strategy and Performance Criteria* (Washington, DC: United States Government Accountability Office, 2007).

[12] Yasotay, "Does the United States Still Need a U.S. Special Operations Command? How Effective Has USSOCOM Been in Fighting the Long War?" *Small Wars Journal*, 2009. http://smallwarsjournal.com/blog/journal/docs-temp/330-yasotay.pdf. (accessed January 14, 2010).

[13] Andrew Krepinevich, "The Pentagon's Wasting Assets: The Eroding Foundations of American Power," *Foreign Affairs* 88, No. 4 (July-August 2009): 18-33. Also see Robert Gates, "A Balanced Strategy: Reprogramming the Pentagon for a New Age," *Foreign Affairs* 88, No. 1 (January/February 2009): 28-42.

and procure Special Operations' peculiar equipment? How, when and why do the U.S. Congress and private industry intervene in the United States Operations Command procurement process?

Several assumptions regarding USSOCOM derive from these research questions that serve as a starting point for this dissertation. First, Special Operations Forces' operational requirements initiate within USSOCOM. Second, the decision that identifies and prioritizes Special Operations Forces' operational requirements is centralized within USSOCOM. Third, USSOCOM interacts within the larger Department of Defense procurement process. Fourth, the defense establishment consists of actors endogenous to the DoD, consisting of the military services, combatant commanders, USSOCOM and civilian officials. Fifth, the defense establishment consists of actors exogenous to the DoD, consisting of Congress and industry. Finally, USSOCOM's effectiveness is measured against USSOCOM meeting its procurement objective.

Therefore, if USSOCOM initiates and determines operational requirements, how is the operational requirement modified within, or endogenous to, the defense department? How do the military services, the combatant commanders, the Secretary of Defense or the Chairman of the Joint Chiefs of Staff influence the decision to develop and procure a Special Operations peculiar capability during the review process? Furthermore, what are the inputs from outside of, or exogenous to, the defense department? How does the U.S. Congress, which appropriates public funds and pays for the capabilities, influence the decision and the outcome? How does industry, which builds the capability, influence the decision and the outcome?

Significance of Research Questions

Although apparently narrow in focusing on the United States Special Operations Command and Special Operations peculiar capabilities, the answers to these questions have both practical and theoretical justifications and implications. The practical justifications are most evident and certainly immediate for USSOCOM, the U.S. Navy and perhaps the Department of Defense as they develop their procurement strategies and for the firms within the defense industry that serve them.

This is the first study that focuses on the role of USSOCOM in developing and producing technologies and capabilities for the military community that it was created to support. Special Operations literature identifies expansion of choice and economy of force as the two principal strategic utilities of Special Operations Forces. To achieve this level of performance, Special Operations Forces employ specifically trained men and specialized equipment. The literature also identifies Special Operations Forces as a source of innovation for general purpose forces.[14] Simply put, Special Operations Forces depend on the quality of

[14] William H. McRaven, *SPEC OPS: Case Studies in Special Operations Warfare: Theory and Practice* (Navato, CA: Presidio Press, 1995). Also see Colin S. Gray, *Explorations in Strategy* (Westport, CT: Praeger, 1996). McRaven calls for small units with limited objectives employing specifically designed technology, among other inputs, to penetrate and achieve relative superiority over the enemy in the stronger defense position for a limited period of time with numerical inferiority. Gray identifies two major claims and several minor claims of SOF. The principal minor claim is technological

the technology and equipment produced by USSOCOM's procurement process to provide the operating forces with a competitive advantage.

Thus, the issue of whether USSOCOM is capable of delivering what the operating forces need is important to the future success and failure of Special Operations Forces. If USSOCOM is not able to develop and produce this equipment or influence the military service -- in this study the Navy -- and the Department of Defense procurement process, the barriers to achieve their procurement objective must be identified, and alternative strategies considered. However, if USSOCOM is able to develop and produce this equipment or influence the military service and the Department of Defense procurement process, those factors that contribute to that success must be understood and leveraged.

Additionally, since technology is a critical enabler for success, insight into the role of innovation versus adaptation is important for the development of all future DoD equipment and technology, not just SOF peculiar procurement. Finally, this is the first study that focuses on the influence of industry on Special Operations peculiar capabilities. Insight from the study could inform defense industry capital allocation decisions and marketing strategy.

There are also a number of theoretical issues that this dissertation explores. First, this dissertation will extend resource based theory, a strategic management theory, to the private and public sectors of the defense

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innovation. Military organizations innovate along doctrine, organization or technology. Dr. Uhler, acquisition executive for USSOCOM states technology is a force enabler for USSOCOM. See Dale G. Uhler, "Technology: Force Multiplier for Special Operations," *Joint Forces Quarterly* 40 (First Qtr 2006): 54-59.

establishment. Although resource based theory has been applied in a military leadership context in the eighteenth-century Royal Navy[15] and one study of UK health care,[16] this study will be the first application of resource based theory as a strategic management framework to public management in the U.S. context in the specific case of equipment and technology procurement processes.

This dissertation will also explore when and whether a differentiation strategy is essential when organizations compete for resources from the same source. Resource based theory supports the argument that linking of capabilities and cooperation across organizational lines versus trying to develop stand-alone capabilities may be a more successful strategy. The practical implication is that USSOCOM would be successful in achieving its procurement objectives if it links its objectives to other service capabilities. Moreover, the application of resource based theory helps us to consider whether USSOCOM could be successful if it considers partnerships and alliances both within and outside of the Department of Defense.

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[15] Charles D. Pringle and Mark J. Kroll, "Why Trafalgar Was Won Before It Was Fought: Lessons From Resource-Based Theory," *Academy of Management Executive* 11, Issue 4 (Nov., 1997): 73-89. Accessed September 15, 2003. Available from www.jstor.org/stable/4165428.

[16] Fran Ackerman, John M. Bryon, and Colin Eden, "Putting the Resource-Based View of Strategy and Distinctive Competencies to Work in Public Organizations," *Public Administration Review* 67, No. 4 (Jul/Aug, 2007): 702-717.

Methodology and Research Design

This dissertation employs qualitative research. It will use both process tracing and structured comparison methodologies.[17] The process tracing methodology will be used to answer questions and themes related to several bodies of literature. The initial three questions center on the idea for the operational requirement: Who originated the operational requirement and why? When did it originate? And how did it originate? Then the influences within, or endogenous to, the Department of Defense will be examined through the next set of questions: What was the role of actors within the Department of Defense? How did they influence the USSOCOM decision process? How did USSOCOM use its unique authorities? What was USSOCOM's influence on the Department of Defense's process? Next, the influences from outside of, or exogenous to, the Department of Defense will be examined: What was the role of Congress and industry? How did they influence the USSOCOM decision process? Finally, the two general themes of innovation versus adaptation design trade-offs will be examined.

The literature review section will discuss several bodies of literature that are relevant for this study, including organizational and bureaucratic politics models, rational choice theory, innovation, and systems analysis literature. All four are well-established bodies of literature that serve as the foundation for understanding and explaining the research questions. All four are commonly used

[17] Steven Van Evera, *Guide to Methods for Students of Political Science* (Ithaca, NY: Cornell University Press, 1997). Also Alexander George, "Case Studies and Theory Development," in *Diplomacy: New Approaches in History, Theory and Policy*, ed. Paul Gordon Lauren (New York, NY: The Free Press, 1979).

to explain the development of military capabilities and the strategies of differentiation employed by and actions taken by organizations competing for resources in the defense establishment.[18] However, they have only been applied to Special Operations topics in a few studies.[19] Moreover, resource based theory, a subset of the strategic management literature, will be extended by this study to both the private and public sectors of the defense establishment and form the basis of the analytical model.

Resource based theory is used in this dissertation to analyze the motivations of and strategies employed by the actors in the procurement process and the outcomes in the case studies. Resource based theory originated as an alternative to Michael Porter's five forces concept, which argues that the source of a firm's sustained competitive advantage is derived from its position relative to its external environment. In Porter's theory, firms position within the industry structure to exploit environmental circumstances in order to develop unique capabilities that differentiate themselves from their competitors. This positioning becomes the source of a firm establishing and sustaining competitive advantage.[20]

In contrast, resource based theory looks inward and argues that private and public organizations possess core competencies. In the public context, these core distinctive competencies must be linked to other public organizations performing

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[18] Harvey M. Sapolsky, "Organizational Competition and Monopoly," *Public Policy* XVII (1968): 358-359.
[19] Marquis, Adams and Locher are the only three foundational studies.
[20] Michael E. Porter, "Industry Structure and Competitive Strategy: Keys to Profitability," *Financial Analysts Journal* 36, No. 4 (July-August, 1980): 30-41. Also see Michael E. Porter, *Competitive Advantage: Creating and Sustaining Superior Performance,* (New York: The Free Press, 1985): 1-30.

related and dependent tasks, or co-specific tasks, through a linking mechanism.[21] This linking mechanism, with its implied strategy of cooperation rather than competition, will alter or refine the established strategic concept of differentiation that currently exists in the bureaucratic and organizational politics literatures. Thus, if resource based theory is applicable to the questions raised in this dissertation, we will expect to see USSOCOM successfully leveraging its authorities when it develops programs that can be used in concert with other military services that enhance the performance of both organizations.

The three platforms will be analyzed using the structured comparison method to study USSOCOM's effectiveness in leveraging its unique authorities to develop and procure Special Operations peculiar capabilities. The platforms specifically characterize the undersea mobility capabilities for the maritime environment. The case study addresses technology and capabilities that pertain to the general purpose naval forces, specifically the submarine force and maritime Special Operations Forces, specifically Naval Special Warfare, the US Navy SEAL Teams.

This study will seek to identify the relationship between theoretical predictions (cooperation rather than competition leading to USSOCOM's success) and the outcome of the entire decision process. The key issue under consideration and the independent variable, or source of the phenomenon, is USSOCOM's ability to leverage its unique authorities and resources to achieve its procurement objectives. The dependent variable is the decision by the defense establishment to establish a program of record and develop and procure a Special Operations

[21] Ackerman, Bryon, and Eden, 702-717.

peculiar capability. The intervening variables are the influences exerted by those actors endogenous to DoD and include the military services and their components and support activities, the civilian officials within DoD, and the combatant commanders and members of the joint community. Additional intervening variables include the influences exerted by those actors exogenous to the DoD and include the U.S. Congress and the defense industry.

Factors that will be considered include bureaucratic and organizational politics interests, rational choice views, and innovation perspectives. These factors will be traced through the relationship between the actors in the defense establishment in each of the three platforms as the capability develops. Congruence with resource based theory on the dependent variable would demonstrate a successful test of the research hypotheses and illustrate the explanatory power of the theory. Incongruence with resource based theory would prove the null set and illustrate the explanatory power of the established literatures that explain military procurement process outcomes.

Case Study Selection

All three platforms represent a program of record that fulfilled a requirement for a dry combat submersible. The first platform is the Advanced SEAL Delivery System (ASDS), which is a dry combat submersible that deploys from a U.S. Navy nuclear submarine. Originally conceived at the end of the Cold War by USSOCOM as an innovative system that provided the means for US Navy SEALs to gain access to politically denied and sensitive areas, it has survived changes in the strategic environment since the demise of the Soviet Union as an operational prototype. USSOCOM sponsored the program, but relinquished its control of the program to the Navy. Despite extensive cost overruns and delays, it was developed as an operational prototype, only to die an inglorious death in a catastrophic fire that started while recharging its battery, the largest lithium battery in the world. ASDS addresses the fundamental functions and core capability of the maritime Special Operations forces and the co-specific tasks of the submarine force. There is no civilian application of the technology.

The second platform is the Joint Multi Mission Submersible. It is a follow-on vehicle to the ASDS. In sponsoring the procurement program, USSOCOM intended to exploit the expensive lessons learned during the development of the ASDS that it had funded. However, USSOCOM responded to the direction of Congress, isolation by both the US Navy and the intelligence community, and intervention by the Department of Defense and cancelled the program before it was ever built.

Finally, the third platform is the S301. The S301 is an experimental prototype and an innovative design that supported USSOCOM's new undersea strategy. Changing course, USSOCOM decided to maintain control of the execution of the acquisition program, vice relinquish control to the Navy as it had done with the ASDS and the JMMS. Responding to intervention by private industry, specifically a foreign submersible builder with new technology, vice adaptive technology and design from an established submarine builder, USSOCOM leased the S301 prototype. The lease ended when the Navy proved its unwillingness to certify the platform as safe for military operations. USSOCOM responded by gaining exceptions to US law and proceeded to develop the capability through foreign shipbuilders.

This case was selected because the three platforms represent distinct variation by the independent variable over time. Additionally, the platforms represent a complete data set and have taken place since the inception of USSOCOM. The procurement requirement originated from within Naval Special Warfare, the maritime component of USSOCOM. The case as a whole displays strong variation in the behavior of USSOCOM and how it leverages its unique authority. The case also displays variation along the adaptation versus innovation design trade-off theme. Finally, the three platforms present variation across intervening variables. Intervention by multiple actors endogenous to the Department of Defense and from actors exogenous to the Department of Defense in the form of Congress and private industry are illustrated.

Hypotheses

Three hypotheses are being tested in this dissertation.

Hypothesis one: USSOCOM has effectively leveraged its unique authorities to meet its stated procurement objectives when the capability supports or improves a core competency of SOF and when that core competency shares a fundamental role or function of another military service endogenous to the Department of Defense.

Hypothesis two: Congress intervenes in the USSOCOM procurement process when the decisions affect U.S. competitive advantage in the international security environment, when the military services require innovation, and/or when individual constituencies are at risk.

Hypothesis three: Defense industry firms intervene in the USSOCOM procurement process to adapt their established systems or to establish new systems that drive innovation.

Brief Literature Summary

Several bodies of literature provide the theoretical foundation for the military procurement process in general and the role of USSOCOM specifically. Each body of literature provides a foundational understanding to a particular aspect of the analytical model and methodology employed in this study to answer the principal research questions. Resource Based Theory, a subset of the strategic management literature, is also introduced and tested.

This study employs organizational and bureaucratic politics models, rational choice theory, innovation and systems analysis literature, and Resource Based Theory. Organizational process and bureaucratic politics models explain the interaction of various actors within the government organizational structure. Rational choice theory informs the strategies and actions taken by the actors that participated in the process. Innovation literature describes the process by which technology is introduced and adapted in both the military and civilian settings. Systems analysis provides the framework on which the military procurement process was established. Finally, Resource Based Theory provides an alternative view of an organization's core capacities that can inform an actor's procurement strategy and add richness to this study's ability to explain the actions of those involved in the case study.

Resource Based Theory fits into the strategic management literature and originated in the private sector. It provides an instrument for looking at a firm and the resources under its control as a source of enduring competitive advantage. Four empirical indicators of potential sustained advantage or resource attributes are that it is rare, valuable, non-substitutable, and non-imitable. Public sector application accounts for the external justification of a public sector organization that must communicate its value to external stakeholders in order to receive appropriated funds, which drives organizations to differentiate themselves and compete for those funds. Resource Based Theory in public sector applications maintain the same four attributes but include the additional attribute of requiring an operational concept and a linked competency to another organization that crosses organizational lines. This study is the first application of Resource Based Theory to public sector organizations outside of UK health care and the first within the defense establishment, specifically USSOCOM.

Dissertation Roadmap

This dissertation contains five chapters. Chapter One has introduced the research problem and the context of the study, presented the research questions and hypotheses, and briefly described the literature employed, including the principal theory being tested. Chapter Two presents the literature review in great detail. Chapter Three recounts the events and development of the three platforms that make up the dry combat submersible case. Recounting the actions of USSOCOM and identifying the influences of the principal actors both endogenous and exogenous to DoD, the chapter describes USSOCOM's evolving method of leveraging its unique authority. Chapter Four applies and maps the attributes of Resource Based Theory to Naval Special Warfare and the Submarine Force to identify each force's distinctive competencies and sources of bureaucratic imperative, cooperation and conflict. The chapter then follows the process tracing methodology to identify and analyze the influences of the actors on USSOCOM's efforts. Finally, the study concludes with a reckoning of Resource Based Theory's ability to explain the development of the dry combat submersible capability and reflects on the discoveries and insight gained from the study and proposes possible applications for USSOCOM.

Chapter Two: Literature and Theory Review

Introduction

This dissertation addresses two principal research questions. First, how has the United States Special Operations Command (USSOCOM) leveraged its unique authorities to influence the Department of Defense (DoD) procurement process in order to meet its procurement objectives to accommodate Special Operations Forces (SOF) operational requirements? And second, how, when, and why do industry and the U.S. Congress intervene in the USSOCOM procurement process?

In order to answer these questions, the context in which they will be examined will be established. A general historical overview and description of the trends in the literature surrounding military capabilities, the structure of the U.S. defense establishment and the process in which it plans and creates military capabilities, an introduction to Special Operations and a recounting of the creation of the United States Special Operations Command (USSOCOM), and a description of its relationship to the defense establishment is essential. This story will be organized around significant legislation enacted by the U.S. Congress that established the structure of the modern U.S. defense establishment.

This chapter begins by identifying the role of military capabilities in international politics. It continues by recounting the history of the U.S. defense establishment and the development of the Joint Strategic Planning Process (JSPS). The literature on Special Operations is reviewed as a foundation for understanding USSOCOM and its introduction into that defense establishment and its interaction with the JSPS. Brief descriptions of two fundamental changes in the geostrategic environment that surrounded the two significant pieces of legislation that frame this study are presented as well.

The second section of the chapter, the theory review, will present the theoretical foundation for an organizational and bureaucratic politics governance framework. This analytical framework synthesizes the literature that forms the foundation for understanding the structure of the defense establishment, how the actors interact, and how military capabilities are created. It is the lens through which this study will examine the case studies. Additionally this framework will identify the limitation of the literature to fully answer the fundamental research questions. Resource based theory, a theory in the strategic management literature, will be introduced into the framework as an analytical tool for explaining the actions taken by USSOCOM and the other members of the defense establishment, as well as serve as the basis of a strategy for USSOCOM when creating military capabilities that accommodate SOF operational requirements. A discussion of the innovation literature is presented to frame the innovation theme inherent to SOF. Finally, the chapter concludes with a presentation of the dissertation methodology that this study will employ to answer the principal research questions.

Military Capabilities and the Defense Establishment

The nation state, the foundational component of the international system, is responsible for its own defense. The anarchic tendencies of the international system drive each nation state to evaluate its military requirements and develop its military force structure in the context of the actions of other states and in the context of its own national constraints.[1] Military power of the state is a principal if not determinant component of state power and statecraft as well as a symbol of national prestige and interest.[2] The ability to prioritize national resources for national defense is a fundamental challenge that every state, including the United States, faces. In the case of the U.S., the concept and practice of technological superiority, often referred to as overmatching capability, is a principal component of the U.S. military strategy and one source of the U.S. competitive advantage.[3] In

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[1] The lack of an international sovereign with the authority and ability to make and enforce international laws makes it difficult for nation states to trust and cooperate with each other to adhere to the status quo, let alone be satisfied with it. This constant of the international system presents a nation state with several problems that it must determine how to resolve. The problem of particular importance to this study is the "security dilemma" whose central proposition is that "an increase in one state's security decreases the security of others." The classic reference on this fundamental condition of the security dilemma is found in Robert Jervis, "Cooperation Under the Security Dilemma," in *The Use of Force: Military Power and International Politics, Fourth Edition,* ed. Robert J. Art and Kenneth Waltz (Lanham, MD: University Press of America, 1993), 35-38.

[2] Three aspects of international relations literature pertain to this study with respect to military capabilities. First, Schelling examined weapons beyond the narrow scope of technology during conflict by expanding their significance to their influence in international politics. He states that "…the weaponry can determine the calculations, the expectations, the decisions, the character of crisis, the evaluation of danger and the very process by which war gets under way." See Thomas Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 1966), 234. Second, one can grasp the influence military capabilities can present to statesmen by examining the functions of force. Robert Art, in his foundational study, claimed that force holds four functions: to compel, to defend, to deter, and to swagger. See Robert J. Art, "The Four Functions of Force," in *The Use of Force: Military Power and International Politics*, 4th edition, ed. Robert J. Art and Kenneth N. Waltz (Lanham, MD: University Press of America, 1993). Finally, the qualitative nature of military capabilities underscores not only how force is used by the statesman, but also what nature of capability the state decides to develop. The "offensive-defensive" nature of military capabilities is fundamental to a state's resolution of the security dilemma. Major developments run a greater risk of altering the perceptions in the security dilemma and therefore potentially decreasing one's security, while minor developments potentially increase one's security without altering the larger offensive-defensive balance. For further discussion, see Thomas Schelling and Morton Halperin, *Strategy and Arms Control* (New York: The Twentieth Century Fund, 1961).

[3] The post-World War II strategic environment drove the U.S. to confront the Soviet threat by developing both conventional and nuclear forces. The dramatic postwar

the case of the United States, this prioritization challenge poses particularly acute problems when policy makers must choose which technologies and capabilities to develop and for what reasons.

In this context, the ability to choose the right technology can help the state reinforce its position of advantage, deter attacks, win operational and strategic victories, and contribute to its overall power and influence.[4] However,

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demobilization of the military forces forced the U.S. to rely on technology as a source of competitive advantage. An updated accounting of this idea can be found in Thomas G. Mahnken, *Technology and the American Way of War Since 1945* (New York: Columbia University Press, 2008). This work includes the role of technology in the resolution of the Cold War and the continued use of technology through the next change in the International Security Environment, characterized by the Global War on Terrorism. An additional perspective on the American reliance on technology since World War II is articulated in T. N. Dupuy, *Understanding War: History and Theory of Combat* (New York: Paragon House Publishers, 1987). In chapters 6 and 15, he discusses the American developments in operations research as byproduct of technological improvements in the efficiency of weapons systems and identifies three circumstances in which superior technology as a factor of strategy increases in importance. However, the reliance on superior technology and the apparent predictability of outcomes has been mixed, and the trend has not contributed to the theory and design of warfare. This discussion is carried out today between the proponents and opponents of Effects Based Operations, whose discussion more times than not reflects service parochialism. The origins of Effects Based Operations are traced back to Strategic Paralysis Theory. Theorists such as Fuller and Warden Boyd focused on ways to prosecute war by directly and decisively attacking the center of gravity of an adversary, thus causing the adversary to crumble from within, and thereby avoiding a strategy of attrition. See JFC Fuller, "Strategic Paralysis as the Object of Decisive Attack," in *On Future Warfare* (London: Sifton Praed, 1928). This concept was captured in John Warden, "Five Rings Model," in *The Air Campaign: John Warden and the Classical Airpower Theorists*, ed. David E. Mets (Maxwell AFB, AL: Air University Press, 1998). Also see David A. Deptula, *Firing for Effect: Change in the Nature of Warfare* (Arlington, VA: Aerospace Education Foundation, 1995). The most recent refutation of the concept occurred in August 2008. The Commander of the United States Joint Forces Command, the individual who validates all conventional forces' military requirements in the Planning Programming Budgeting and Execution process, eliminated the employment of Effects Based Operations. For complete text, see J.N. Mattis,"Assessment of Effects Base Operations," *Small Wars Journal*, http://smallwarsjournal.com/documents/usjfcomebomemo.pdf (accessed September 27, 2009).

[4] Foundational theorists such as Schelling, Halperin, and Art, as outlined in footnote 3, explain the impact that technology and military capabilities provide the state and the broader uses of force. The classic discussion on technology choice to secure a competitive advantage is captured in the decision to develop the Polaris Fleet Missile Submarine and accompanying Polaris Fleet Ballistic Missile. The debate over the more

choosing the wrong technology suggests theoretically that the state may erode its position of competitive advantage, limit operational and strategic freedom of action, expend scarce resources at the expense of other national priorities, and even risk strategic defeat.[5]

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certain and secure deterrent involved choices between land- or sea-based ballistic missiles and cruise missiles and bombers. Under the theory of strategic deterrence, "…ballistic missiles [were] more certain than either cruise missiles and air delivered bombs because they were harder to defend against. Submarine-launched ballistic missiles [were] more secure than land based or other sea based missiles because they are less vulnerable to destruction by surprise attack." For more elaboration, see Harvey M. Sapolsky, *The Polaris System Development: Bureaucratic and Programmatic Success in Government* (Cambridge, MA: Harvard University Press, 1972), chapter 2. Additional discussion on weapons choice can be found in the foundational study by Merton J. Peck and Frederick M. Scherer, *The Weapons Acquisition Process: An Economic Analysis* (Cambridge, MA: Division of Research, Graduate School of Business Administration, Harvard University, 1962), chapter 8. The discussion on the impact of technology choice and performance tradeoffs is captured under the discussions pertaining to the material elements of strategy and strategic risk. An example of this literature can be found in Timothy N. Castle and Richmond M. Lloyd, "Part Eight: Translating Strategy to Forces," *Strategy and Force Planning*, 4th ed. (Newport, RI: Naval War College Press, 2004).

[5] The Royal Navy struggled with the choice to develop naval aviation technology and capabilities during the interwar years. Even after successful operational experience during World War I, the Royal Navy, unlike the U.S. and Japanese navies, chose to not develop a Naval Aviation capability. Naval Aviation proved to be the dominant naval capability during the cataclysmic clash of naval forces during World War II. At the conclusion of the war, the Royal Navy lost its rank as the premier naval force that it had held since the 18th century. For further discussion, see Thomas C. Hone and Mark D. Mandeles, "Interwar Innovation in the Three Navies: U.S. Navy, Royal Navy, Imperial Japanese Navy," *Naval War College Review* 40 (Spring 1987): 63-83. An excellent study capturing the essence of the strategic imperatives presented by the Cold War and the unifying consensus on defense expenditures is captured in Richard A. Lacquerment Jr., *Shaping American Military Capabilities After the Cold War* (Westport, CT: Praeger, 2003). In particular, Lacquement argues in chapter two that in the midst of the immediate post-World War II demobilization, the tensions between the United States and the Soviet Union help develop a U.S. national consensus on military capabilities. Moreover, he identifies the first Cold War flashpoint, the Korean War, as instrumental in driving the decision to create a large standing military in order to enforce a strategy of containment, and argues that the Strategic Military Requirements (strategic deterrence, forward defense or conventional deterrence, and mobilization and reinforcement) articulated in President Reagan's 1988 National Security Strategy are representative of the consensus over defense spending during the Cold War. In the context of an altered security environment, choice over the balance of the various components of force structure at the strategic level is articulated by the former Deputy Secretary of Defense in the Clinton Administration, the Honorable John J. Hambre, while reflecting on consensus over the defense budget in light of the national security strategic direction articulated in the

The ability to organize national resources to develop technologies and military capabilities is a second challenge that states face in the security arena. A fundamental question is whether and when a state should allow separate military services to develop their capabilities for maximum flexibility and adaptability, while understanding that this approach can waste resources. In addition, states need to consider whether and when to centralize the process, the costs and benefits of doing so, and whether the state can align individual service goals to be consistent with national foreign policy objectives and domestic, economic and political constraints.[6]

Quadrennial Defense Review. Dr. Hambre's remarks serve to highlight the uncertainty created by strategic change in the post-Cold War security environment and the risks associated with choosing to develop military capabilities to confront the threats. For further discussion, see John. H. Hambre, "The Evolving National Security Agenda: The Search for Public Consensus," in *The Defense Industry in the Post-Cold War Era: Corporate Strategies and Public Policy Perspectives*, ed. Gerald I. Susman and Sean O'Keefe (New York: Peramon, 1998), 22-23. An example of an analytical study to the political discussion on the changing allocation of national resources for defense purposes during strategic change can be found in Alex Mintz, *The Political Economy of Military Spending in the United States* (New York: Routledge, 1992). Chapters 9 and 15 specifically address the "Guns versus Butter" trade-off and the implications for future spending. Finally, the difficulty of choice and trade-offs between technology and military force structure components in the post-9/11 international security environment has only been heightened. Examining this topic from the American perspective as the sole hegemonic power, the noted strategist Colin S. Gray cautions against overconfidence in the Revolution in Military Affairs in national defense policy as a means to ensure competitive advantage and security. For further discussion, see Colin S. Gray, *National Security Dilemmas: Challenges and Opportunities* (Washington, DC: Potomac Books, 2009).

[6] Centralization versus diffusion of power and the role of the military services is a recurring theme in post-World War II American defense planning. See for example Bernard Brodie, "Strategic Thinkers, Planners, Decision-Makers," in *War and Politics* (New York: MacMillian Publishing, 1973). Governance of the military instrument of national power was distributed prior to the 1947 National Security Act, during which period land and naval forces were organized, governed, and administered as separate departments, each with a cabinet-level secretary reporting directly to the president of the United States, the Commander in Chief. For the classic discussion on this history and individual military service strategy, culture, influence, independence and institutional structure, in which Builder argues that distribution of power strikes at a core national trait as articulated in the U.S. Constitution, see Carl H. Builder, *The Masks of War: American*

In the case of the United States, the development and procurement of military capabilities is highly centralized in both the government and the private sector. This concept of and approach to centralization is based on American experiences during World War II.[7] Until the experience of World War II, the individual military services were granted the authority to autonomously plan, develop, and execute separate procurement programs as well as plan and conduct military operations. Any evaluation of the effectiveness of an individual military service's procurement program was based on whether the capability contributed

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Military Styles in Strategy and Analysis (Baltimore, MD: The John Hopkins University Press, 1989).

[7] See James R. Locher III, *Victory on the Potomac: The Goldwater-Nichols Act Unifies the Pentagon* (College Station, TX: Texas A&M Press, 2002), chapter 1. Senior Army officers initially expressed concern over the wartime Joint Chiefs of Staff because of a perception of competition between the services. In 1943, the Chairman of the Joint Chief of Staff forwarded an Army plan to create an independent Air Force and re-organize the War and Navy Departments into one Department of National Defense. Consensus by the Joint Chiefs could not be achieved, so a special committee, chaired by Admiral Richardson, was appointed to study the plan further. In 1945, the committee reported in favor of the Army reorganization plan. President Roosevelt died the day after the report was released, and the issue remained unresolved until the National Security Act of 1947 was enacted into law. The central issue with the National Security Act of 1947 was to attempt to reduce the power that the services had gained during the course of the war. Relevant to this study, Mr. John L. Sullivan initially guided the Navy through the defense unification dictated by the 1947 National Security Act. The subsequent identification of roles and missions across and within the naval service involved much debate and political maneuvering. The results were reflected in defense appropriations and budgets. The acrimony of the debate is illustrated by the resignations of both the first Secretary of Defense and the Secretary of the Navy. For further discussion, see Paolo E. Coletta, *The United States Navy and Defense Unification, 1947-1953* (Newark, DE: University of Delaware Press, 1981). The clearest illustration and insight into the debate over the centrality of power is gained through the reflections and actions of General and later President Eisenhower. As president, Eisenhower signed the Defense Reorganization Act on August 6, 1958. This law established unified command from civilian control of the military directly to the unified combatant commander in the field, reducing the role of the independent services in operational matters. For details and a recounting of the amendments to the 1947 National Security Act leading up to the 1958 Defense Reorganization act, see David Jablonski, "Eisenhower and the Origins of Unified Command," in *Joint Forces Quarterly* (Autumn/Winter 2000): 24-31.

to that services-dominant concept of war and its perception of its identity and purpose as an institution.[8]

The U.S. Navy's dominant concept of war, the example germane to this study, is Mahanian in nature and was firmly established in U.S. Naval Service culture during the epic sea battles of World War II. Mahan, writing at the end of the 19th century at the U.S. Naval War College, proposed the idea of decisive fleet battle as the means through which great maritime powers held command of the sea. Command of the sea provided maritime nations with the ability to set conditions for their commercial fleets to exploit the great maritime commons in order to increase political and economic influence through trade on a global scale.[9] Today, the concept of command of the sea remains, but the term has been

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[8] An example of the service-specific dominant concepts of war and its reflection in practice can be seen in Russell Frank Weigley, "Part Four: American Strategy in Global Triumph, 1941-1945," in *The American Way of War: A History of the United States Military Strategy and Policy* (Bloomington, IN: Indiana University Press, 1973). In part 4, he discusses the strategic tradition of Mahan in the Pacific Theater and Ulysses S. Grant in the European Theater. ThroughWorld War II, the Secretary of War and the Secretary of the Navy served as the civilian leadership of the three military services to include jurisdiction over operations. In particular, Weigley provides examples of tension between the services, a tension that was eventually settled by unified command over service components during operations. See chapters 13 and 14, pp. 269-359. Of particular relevance to this study is the impact that a change in the strategic environment has on the "strategic concept" of a military service, its dominant concept of war, on a service. Huntington, writing during the early years of the Cold War, argues that unless the service has embraced a strategic concept, it will wander and will provide an ineffective contribution to the nation. See Samuel Huntington, "National Policy and the Transoceanic Navy," in *The United States Naval Institute Proceedings* 80, no. 5 (May 1954): 483-495. Seth Cropsey, applying Huntington's argument to today, states that the current strategic environment dominated by counterinsurgency operations in the land domain prevents national debate on the U.S. maritime strategy and, as a result, has left the U.S. Navy without a viable and publically endorsed "strategic concept." See Seth Cropsey, "The U.S. Navy in Distress," *Strategic Analysis* 34, no. 1 (2010): 35-45.

[9] Alfred T. Mahan, *The Influence of Sea Power Upon History: 1660-1783* (New York: Dover Publications, 1987). Mahanian concepts remain today. Three prominent references on naval theory today are Geoffrey Till, *Seapower: A Guide for the Twenty-First Century* (London: Frank Cass, 2006); George W. Baer, *The U.S. Navy, 1890-1990: One Hundred Years of Sea Power* (Stanford CA: Stanford University Press, 1993); and Milan Vego, *On*

replaced by the term "sea control" and is expressed as one of the U.S. Navy's core competencies in the United States' current naval strategy document entitled *A Cooperative Strategy for the 21st Century Seapower*.[10] Scholars continue to consider fleet battle one of the six functions of naval forces in their quest for sea control. Of particular relevance to this study is the enduring function of power projection as part of the dominant concept of war for the U.S. Navy.[11]

For the United States, the National Security Act of 1947 served as the watershed event that altered the governance structure of the military instrument of national power.[12] This law and the series of agreements and amendments to it that

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Naval Warfare (Newport, RI: Naval War College Press, 2008). Also germane to this study because of its consideration of a state's employment of naval power to intervene and project power ashore to achieve limited objectives on land is Julian S. Corbett, *Some Principles of Maritime Strategy* (London: Longmans, Green and Co., 1911). For Corbett, command of the sea is merely a means to employ naval power vice its objective.

[10] U.S. Navy, U.S. Marine Corps, and U.S. Coast Guard. "A Cooperative Strategy for 21st Century Seapower," October 2007, http://www.navy.mil/maritime/Maritimestrategy.pdf (accessed November 8, 2011).

[11] Frank Uhlig Jr., "Fighting at and from the Sea – A Second Opinion," *Naval War College Review* 56, no. 2 (Spring 2003): 39-52. Uhlig considers the six functions of naval warfare to be fleet battle, power projection, commerce raiding, coastal defense, blockade, and fleet in being.

[12] Governance structure refers to those who control an organization, that is, those who determine who and the terms in which they participate. See Herbert A. Simon, *Administrative Behavior: A Study of Decision-Making Process in Administrative Organizations* (New York: MacMillan Company, 1945). For the purposes of this study, the broader organization is the defense establishment comprised of both executive and legislative branches of government. The complexity of the American defense establishment and its idiosyncratic nature evolved over time. The classic study on the American experience and evolution of its governance structure is captured by Samuel P. Huntington in *The Soldier and the State: The Theory and Politics of Civil-Military Relations* (Cambridge, MA: Belknap Press, 1957). Chapter 4 entitled "Civilian Control" and Part 3 entitled "The Crisis of American Civil-Military Relations 1940-1955" are of particular relevance to this study. For a thorough examination of the centrality of the World War II experience on the distribution of power within national defense, see Jack Raymond, *Power at the Pentagon* (New York: Harper & Row, 1964). For the context of this study, governance structure refers to the organization, control, and decision-making characteristics of the defense establishment. Recent scholarship considers democratic governance structure where decisions are political in nature, governance structure refers to a "hierarchical set of layered governmental institutions culminating in the sovereignty

culminated with the 1958 Defense Reorganization Act reasserted the role of the legislative branch of government in defense matters, reduced the power of the military services, and reinforced civilian control over both military operations and military service budgets to include procurement.[13] James Forrestal, the first Secretary of Defense and former Undersecretary and Secretary of the Navy under presidents Roosevelt and Truman during World War II, sought to build a Joint Force based on national objectives and financial constraints, fully understanding that this approach would run directly into the interests of the individual services, each of which had just lost their autonomy over decisions pertaining to both operations and force structure.[14]

Two major changes have occurred since the 1947 National Security Act and the 1958 Defense Reorganization Act. The first change occurred during the Kennedy administration. Secretary of Defense McNamara increased the level of civilian influence and centralized control over the military services by altering the structure of the military procurement process. He introduced the Department of Defense (DoD) to the Planning Programming Budgeting System (PPBS) and divided the defense budget into ten broad categories of capabilities for the Defense Department, which were known then and remain today as major force

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of a parliament." For details, see chapter 6 of Grahame F. Thompson, *Between Hierarchies and Markets: The Logic and Limits of Network Forms of Organization* (New York: Oxford University Press, 2003).

[13] Jablonsky, 27-31. For an excellent survey of the evolution of the governance structure in the defense establishment from the 1947 National Security Act through the post-9/11 security setting, see D. Robert Worley, *Shaping U.S. Military Forces: Revolution or Relevance in a Post-Cold War World* (Westport, CT: Praeger Security International, 2006). Also see Roger R. Trask, *The Secretaries of Defense: A Brief History 1947-1985* (Washington, DC: Historical Office, Office of the Secretary of Defense, 1985).

[14] See Coletta, Raymond, Jablonsky, and Worley.

programs.[15] This process introduced a systems analysis approach to evaluating military capabilities.[16]

Systems analysis is the concept of optimizing the allocation of resources in dollar terms through rational design trade-offs of quantifiable units of some capability attribute within the major force category. The specific intent is to ensure that all military capabilities, regardless of which service they belong, must fit into one of these major force programs.[17] The case of the development of

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[15] Expected Utility models and systems analysis were formally institutionalized in the weapons acquisition process under Secretary of Defense McNamara during the Kennedy administration. For a synopsis of the history and approach by the Department of Defense comptroller who developed and instituted the system, see Charles Johnston Hitch, "Management Problems of Large Organizations," *Operations Research* 44, no. 2 (Mar.-Apr., 1996): 258-259. PPBS evolved and its concept was refined and broadly applied over time. For a thorough overview and history of the concept, see chapters 1-4 in David Novick, *Current Practice in Program Budgeting (PPBS): Analysis and Case Studies Covering Government and Business* (New York: Crane, Russak & Company, 1973). For a foundational source in understanding the economic analysis contribution to PPBS and defense planning, see Charles Johnston Hitch and Roland N. McKean, *The Economics of Defense in the Nuclear Age* (Cambridge, MA: Harvard University Press, 1960). For a foundational study in the application of PPBS, see Alain C. Enthoven and K. Wayne Smith, *How Much is Enough? Shaping the Defense Program: 1961-1969* (New York: Harper & Row Publishers, 1971).

[16] A foundational source is William I. Boucher and Edward S. Quade, *Systems Analysis and Policy Planning* (New York: Elsevier, 1968). Also see Brodie, 397, 460, and 461, where he describes how "systems analysis is designed especially to choose new weapons systems for the future. …Everything that goes into the acquisition, operation, and maintenance over a given period of time (usually four or five years) … comprises as a package the … system. … The analysis is usually a matter of comparison on a 'cost-effectiveness' basis." A classic example of this can be found in Edward S. Quade, "The Selection and Use of Strategic Air Bases: A Case History," in *Analysis for Military Decisions* (Santa Monica, CA: The Rand Corporation, R-387-PR, 1964). For an understanding of the impact of PPBS on defense planning, see Peter DeLeon, "The Influence of Analysis on Defense Planning," in *Policy Sciences* 20, no. 2 (June 1987): 105-128.

[17] In today's post-Goldwater-Nichols context, the Joint Requirement Oversight Council, or JROC, serves as the enforcement mechanism. Chaired by the Vice Chairman of the Joint Chiefs of Staff and comprised of the Vice Service Chiefs, this committee serves at the intersection of and balances the interaction of the requirements generation, strategic planning, and acquisition systems. For details, see Raymond E. Sullivan Jr., *Resource Allocation: The Formal Process*, 8th Edition (Newport, RI: National Security Decision Making Dept., U.S. Naval War College, 2002). The initial ten major force programs have

nuclear forces illustrates this point. The search for a secure and reliable nuclear deterrent was undertaken in the context of an evaluation of the land-, sea-, and air-based ballistic missile programs that were operated by the Army, Navy, and Air Force respectively during the early 1950s.

The major force program for strategic forces, Major Force Program – 1, included all nuclear capabilities: land-based intercontinental ballistic missiles, sea-based ballistic missiles, and nuclear weapons deployed on land-based bombers. For this nuclear triad involving programs from all of the military services, PPBS evaluated the ability of each procurement program to support the overall major force program and to build a capability that mitigates – that radically diminishes – the influence of individual services to push their own parochial interests and to subordinate those service interests to the overall operational capabilities of the United States and its joint military forces. While the role of the Army in nuclear matters was reduced to missile defense, this overall approach to defense planning and technology development serves as the classic case of how to evaluate alternatives across the military services for the purpose of achieving a unified, coordinated, and cost-effective means to develop a military capability in order to execute national strategy.[18]

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remained unchanged. They are strategic forces; general purpose forces; intelligence and communications; airlift and sealift forces; guard and reserve forces; research and development; central supply and maintenance; training, medical, and other general personnel activities; administration and associated activities; and support to other nations. An eleventh, MFP-11, Special Operations Forces, was added with the 1986 Goldwater Nichols Legislation. See Worley, Chap. 2.

[18] Ibid., 261. The classic example of the search for alternatives is captured in Harvey M. Sapolsky, *The Polaris System Development* (Cambridge, MA: Harvard University Press, 1972). Economic analysis and operations research form the core of systems analysis. The tension exists within the system over the inability of systems analysis to consider social,

This process imposes an explicit organizational structure and routine that identifies and limits the participants, which is intended to mitigate the influence of bureaucratic and political motivations of the individual agencies and actors who are responsible for evaluating and resolving their competing interests and perspectives. The point is to establish national priorities through a process that leads to decisions on the allocation of scarce resources for the development and procurement of military capabilities that respond to what combatant commanders require. The process ranks national priorities defined by each administration over service priorities, as well as reinforces civilian control over the military service.[19] Examples of bureaucratic and political motivation include service and service components establishing and protecting roles and missions, civilian government executives positioning and bargaining to build influence within an administration, and legislators winning and directing national funds toward their local constituencies for political loyalty.[20]

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political, and moral concerns. For further discussion, see Colin S. Gray, "What Rand Has Wrought," *Foreign Policy* 4 (Fall, 1971): 111-129. Also see DeLeon.

[19] The essential function has not changed over time. See Sullivan.

[20] Excellent analysis of competing interests surrounding the development and creation of new military capabilities that are germane to the focus of this study, undersea maritime capabilities, can be seen in the development of the submarine force. For harnessing nuclear-powered naval propulsion, see Eugene Lewis, "Admiral Hyman Rickover: Technological Entrepreneurship in the U.S. Navy," in *Leadership and Innovation: A Bibliographical Perspective on Entrepreneurship in Government*, ed. James W. Doig and Erwin C. Hargrove (Baltimore, MD: The Johns Hopkins University Press, 1987). For the creation of a sea-based nuclear deterrence system, see Sapolsky, *The Polaris System Development.* For general submarines development, see Owen R. Cote Jr., *The Third Battle: Innovation in the U.S. Navy's Silent Cold War Struggle with Soviet Submarines,* Newport Papers (Newport, RI: Naval War College Press, 2003). Also germane to this study is Susan L. Marquis, *Unconventional Warfare: Rebuilding U.S. Special Operations Forces* (Washington, D.C: Brookings Institution Press, 1997) for an analysis of the varying interests involved with defining the "Precarious Value" of Naval Special Warfare to the Fleet during the post-Vietnam demobilization. Finally, for a comprehensive study regarding external influences in the defense budget encompassing both pre- and post-

The ability of systems analysis to maximize the required balance of military capability attributes is greatest when the threat is clearly defined and widely accepted, as was the case during the Cold War. The objective was an ever-increasing level of technological performance in order to produce a competitive advantage over a known threat within a national strategy of containment. For example, the evolution of undersea capabilities in particular was driven by the need to maintain a competitive advantage over the Soviet fleet in general, and the submarine service in particular in order to accomplish the enduring naval mission of sea control.[21] Threat-based assessment structured the argument and was the driving factor behind allocation of resources. The Reagan Buildup clearly illustrates the concept of a dominant position of national security within the national strategy and its impact on defense spending and weapons procurement.[22]

Once the decision is made to develop a military capability in this complex defense planning environment, the government acts on the decision and establishes a procurement program, termed a "Program of Record," on the basis

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Goldwater-Nichols legislation, see James H. Lebovich, "Riding Waves or Making Waves? The Services and the U.S. Defense Budget, 1981-1993," *The American Political Science Review* 88, no. 4 (Dec. 1994): 839-852.

[21] For an excellent review of enduring naval objectives, see Uhlig, "Fighting at and from the Sea – A Second Opinion," 39-52. For a comprehensive review of U.S. submarine development, see Owen R. Cote Jr., *The Third Battle*. Finally, of particular relevance to this study with respect to illustrating the relationship between the defense industry and government in the context of creating undersea military capabilities, see Lewis.

[22] For further discussion on the Reagan Buildup, see Daniel Wirls, *BUILDUP: The Politics of Defense in the Reagan Era* (Ithaca, NY: Cornell University Press, 1992). An excellent summary of the requirements process in a historical context of the Cold War is captured by Jacques S. Gansler, *The Defense Industry* (Cambridge, MA: The MIT Press, 1980), chapter 1. Also see Eugene Gholz, Allen Kaufman, and Harvey M. Sapolsky, "Security Lessons from the Cold War," *Foreign Affairs* 78, no. 4 (Jul. – Aug., 1999): 77-89. Another historical piece that emphasizes the Reagan Buildup is captured by Gordon Adams, "Defense Choices and Resource Constraints: The Dilemma of the Investment Driven Defense Budget," *Yale Law & Policy Review* 5, no. 1 (Fall-Winter, 1986): 7-27.

of three distinct factors related to production: quality, cost, and time of delivery, also known as "cost, schedule, and performance."[23] The decision to develop and procure any specific military capability represents a balance among these three competing production factors. If the capability requirement is urgent, the additional cost and political risks are acceptable in order to produce the required weapons system or technology at the desired level of capability in a specific time. This trade-off among production factors contributes to a position of competitive advantage in that the overmatching capability is developed and fielded, mitigating the challenge posed in the international security environment by deterring a potential adversary and by obtaining the capability to compel an adversary if necessary. Conversely, if the capability requirement is not urgent, the resulting costs and political risk would be mitigated by waiting for the technology to mature. In this later circumstance, the trade-off among production factors reduces the cost of procurement for the government but imposes risks in terms of a potential loss to the nation's position of competitive advantage.

[23] Peck and Scherer, 19. The record for balancing the three production factors is mixed to poor, indicating sufficient effort at improving the acquisition process in order to reduce the cost of production. A representative sample of the literature includes the following: Joseph G. Bolten, *Source of Weapons System Cost Growth: Analysis of 35 Major Defense Acquisition Programs* (Santa Monica, CA: The Rand Corporation, 2008); Marsha J. Kwolek and James R. Rothenflue, *Streamlining DOD Acquisition: Balancing Schedule with Complexity* (Montgomery, AL: Air University Press, 2006); Mark V. Arena, *Why Has the Cost of Navy Ships Risen? A Macroscopic Examination of the Trends in U.S. Naval Ship Costs Over the Past Several Decades* (Santa Monica, CA: The Rand Corporation, 2006); Irv Blickstein and Charles Nemfakos, *Improving Acquisition Outcomes: Organizational and Management Issues* (Santa Monica, CA: The Rand Corporation, 2009); Frederick Biery, "The Effectiveness of Weapons Systems Acquisition Reform Efforts," *The Journal of Policy Analysis and Management* 11, no. 4 (Autumn 1992): 637-664.

Industry and Government Relationship

Meanwhile, private industry has remained an active participant through all the changes in the strategic environment and through all the structural changes that occurred in the government sector of the defense establishment. A strong relationship between the defense industry and the military services existed prior to World War II. The capacity to develop and build military capabilities in this period rested largely with private industry.[24] The capacity of the fleet and its relationship with the defense industry fluctuated, depending on the intended purpose of the fleet and the roles and missions assigned to it in the context of the strategic environment of the time. The historical origins of the large and ocean-going or "Blue Water" U.S. Navy began during the closing stages of the nineteenth century, when domestic political forces in the executive and legislative branches of government determined that growing U.S. commercial interests needed protection and that U.S. participation in world affairs would increase.[25] In the case of the maritime forces, the Navy and the shipbuilding industries endured

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[24] The relationship with the military service in the maritime context in particular dates back to the age of sail and the founding of the country. However, the demand for protection of U.S. maritime trade grew in the first half of the 19th century, and this demand coincided with the introduction of steam power plants into naval engineering. The incapacity on the part of the Navy to absorb and administer the technological complexity dates back to the development and construction of the ironclads just prior to the Civil War. See Kurt Hackemer, *The U.S. Navy and the Origins of the Military-Industrial Complex 1847–1883* (Annapolis, MD: Naval Institute Press, 2001), especially chapters 1, 2, 5, and 7.

[25] Of particular relevance to this study is the level of capital investment required by private industry and government to produce and maintain a large ocean-going navy. For further discussion on the origins of the political economy of defense, see Ben Baack and Edward Ray, "The Political Economy of the Origins of the Military-Industrial Complex in the United States," *The Journal of Economic History* 45, no. 2 (June 1985): 369-375.

a “strained symbiosis.”[26] This relationship produced naval capabilities in the fleets that evolved over time through industry’s integration of known technologies, episodically producing fundamental increases in operational capability.[27]

World War II was a watershed event. The nation’s industrial might was restructured for wartime production in order to leverage its scale of production as a foundation for a strategy of attrition. Wartime demands to increase the military capability of U.S. forces produced rapid technological advancement. In the context of undersea capabilities, the subject of this study, a strong connection developed between the Navy, industry (including the scientific community), and Congress, often referred to as the Iron Triangle or the Naval Industrial complex. This relationship did not develop out of design, but through the accumulation of multiple individual interactions between the naval service and defense firms based on a national need created by World War II and legal authority granted by Congress.[28]

The post-World War II demobilization initially followed the historical U.S. tendency to demobilize after warfare, in both scale and severity. However,

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[26] Michael Lindberg and Daniel Todd, *Navies and Shipbuilding Industries: The Strained Symbiosis* (Westport, CT: Praeger Publishers, 1996).
[27] Karl Lautenschlager, “Technology and the Evolution of Naval Warfare,” *International Security* 8, no. 2 (Autumn 1983): 3-51.
[28] Gary E. Weir, *Forged in War: The Naval-Industrial Complex and American Submarine Construction, 1940-1961* (Washington, DC: Naval Historical Center, Dept. of the Navy, 1993). Weir tracks the link between the navy and industry during wartime mobilization through demobilization and the onset of the Cold War. In the name of industrial preparedness for national emergency, firms would dedicate a portion of their capacity for the production of naval material. For contemporary discussion on the military industrial complex in the context of strategic uncertainty, see James Fallows, “The Military-Industrial Complex,” *Foreign Policy* no. 133 (Nov.-Dec., 2002): 46-48. For a discussion on the changing relationships within the military industrial complex as a result of a lack of political consensus, see Baack and Ray.

the growing political tensions with the Soviet Union over its expansionist communist ideology and the military threat presented by its numerically superior conventional forces and developing nuclear capability presented the U.S. with a strategic threat. The U.S. adopted a foreign policy strategy of containment of the Soviet Union that remained consistent throughout the Cold War period due to U.S. perception of its role as a world leader and its ability to leverage its economic strength.[29] The theme of leveraging technological superiority to "offset" Soviet numerical superiority remained consistent through the changing administrations.[30] The impact of this "technological offset" strategy intended to counter the specific threat posed by the Soviet Union induced unprecedented and sustained defense appropriations that fundamentally altered the underlying economics and structure of the defense industry and influenced the relationships between industry and the government.[31]

[29] For reflections on the consistency in defense policy in the context of Cold War threat, see former Secretary of Defense William J. Perry, "Defense Investment Strategy," *Foreign Affairs* 68, no. 2 (Spring 1989): 72-92.
[30] For a historical discussion on the offset strategy and its impact on the defense industry, see Ashton B. Carter, "Keeping America's Military Edge," *Foreign Affairs* 80, no. 1 (Jan.-Feb., 2001): 90-105.
[31] For the landmark study on the defense industry, see Merton J. Peck and F. M. Scherer, *The Weapons Acquisition Research Project* (Cambridge, MA: Harvard Business School, 1964). For other studies from early stages of the Cold War, see Charles J. Hitch, "The Defense Sector: Its Impact on American Business," in *The Defense Sector and the American Economy* (New York: New York University Press, 1968), 19-23. For another significant study on the impact of the Cold War on the defense industry, see William Lee Baldwin, *The Structure of the Defense Market, 1953-1964* (Durham, NC: Duke University Press, 1967). Also see J.R. Fox, *Arming America: How the U.S. Buys Weapons* (Cambridge, MA: Harvard University Press, 1974). For an updated and follow-up foundational study for understanding the defense structure, see Jacques S. Gansler, *The Defense Industry*. For the impact of the Reagan Buildup, which served as the antecedent event that led to the end of the Cold War, and its impact on the defense industry, see Wirls.

The relationship between government and the defense industry is predicated on fundamental and enduring unique characteristics of the defense market. The government, specifically the Department of Defense, a part of the executive branch of government, also serves as a regulator, imposing contractual terms for the development and production of military capabilities based on cost based formulas of its choosing.[32] Additionally, to further complicate the nature of the buyer, the scale of the procurement program is ultimately determined by Congress, a separate legislative branch of government.[33] Finally, because of Congress's constitutionally granted role to tax and appropriate funds to raise armies and maintain navies, Congress and defense procurements are particularly sensitive to public accountability.[34]

The defense market is a monopsony, an imperfect market that does not follow accepted economic theory because of the multiple roles that the government plays.[35] The government serves as sole customer as well as

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[32] For a discussion on the role of the government as a regulator and the impact on the defense industry, see William P. Rogerson, "Economic Incentives and the Defense Procurement Process," *The Journal of Economic Perspectives* 8, no. 4 (Autumn, 1994): 65-90. For further discussion on the impact of regulation on the defense industry, see Fred Thompson, "Deregulating Defense Acquisition," *Political Science Quarterly* 107, no. 4 (Winter, 1992-1993): 727-749. Also see Eugene Gholz and Harvey M. Sapolsky, "Restructuring the U.S. Defense Industry," *International Security,* 24, no. 3 (Winter, 1999-2000): 5-51.

[33] Gansler, *The Defense Industry*, 32-36. Also see J.R. Fox, *Arming America*, 114-148.

[34] Ibid., 75. This concept was originally articulated as "public approbation." See F.M. Scherer, *The Weapons Acquisition Process: Economic Incentives*, Thesis (Boston: Harvard University, Division of Research, Graduate School of Business Administration, 1964), 7.

[35] For further discussion on 30 examples of variance in the defense industry's conduct relative to accepted free market economic theory, see Gansler, *The Defense Industry*, 30-31.

regulator.[36] In its role as sole customer, it identifies the specific product based on a need to develop a military capability or requirement, regardless of the cost. The demand is fundamentally political in nature, predicated on performance and scale in the context of competitive advantage against a specific external threat. Therefore, the interaction of supply and demand and the subsequent economic allocation of resources based on price do not occur. The government, the buyer, is price insensitive.[37] Sustained appropriations to field-strategic nuclear forces and large standing conventional forces under monopsony, regulation, and government sponsorship of research and development intended to achieve a position of competitive advantage in the context of the Cold War influenced the industry structure.[38]

Uncertainty is a principal factor that contributes to the unique nature of the defense market. Authors Peck and Sherer state in their foundational study *The Weapons Acquisition Research Project* that uncertainty derives from two sources and takes two forms, internal and external. Internal uncertainty referred to the

[36] For a concise discussion on the nature of government cost-based regulation and the incentives it provides to defense firms, see William P. Rogerson, "Economic Incentives and the Defense Procurement Process," 65-90.

[37] For discussion on the nature of the government as buyer, see Gansler, *The Defense Industry*, 32. The government serves as sole legal buyer and also regulates foreign sales. Additional discussion with respect to concentration of expenditures within a few procurement programs is also discussed. These characteristics relate to the political nature of the scale of the program.

[38] This study will employ the widely accepted and seminal work of Michael Porter. Industry structure is determined by the interaction of competitive factors of the bargaining power of suppliers and buyers and the threats presented by potential new entrants to the industry and potential substitute products. This concept will be discussed in the theory review section of this study. For further discussion on industry structure, see Michael E. Porter, "Keys to Profitability," *Financial Analysis Journal* 36, no. 4 (July-August, 1980): 34-41; Michael E. Porter, *Competitive Strategy* (New York: The Free Press, 1980); Michael E. Porter, *Competitive Advantage: Creating and Sustaining Superior Performance* (New York: The Free Press, 1985).

maturity of the underlying technology that generated the level of performance required of the military capability being developed. This technical uncertainty reflected itself in how the factors of production, time, quality, and cost were balanced in the decision to create the capability.[39] External uncertainty referred to the threats that the strategic environment presented the nation and is reflected in a broad consensus of the operating concept and the capabilities a military service requires to fulfill its roles and mission.[40] In the context of Peck and Scherer's seminal work, political and military consensus formed around the foreign policy strategy of containment and the military strategy that employed superior technology to create capabilities to support strategic nuclear deterrence forces paired with large standing conventional forces.

Jacque Gansler, in the Cold War era's authoritative study *The Defense Industry,* described how the government demand for continuously increasing performance criteria coupled with the requirement to produce weapons on a large scale divided the industry into two tiers of large system-integrating prime contractors and second-tier component suppliers and narrowly focused firms exploiting new technology. The value proposition presented to industry by the government resided with the production of the military capability. Concentration of production into few large procurement programs reinforced the signal and spurred the defense industry to make substantial capital investments in production facilities capable of manufacturing on the required scale. In the process, a relationship developed between Congress and the defense firms operating in their

[39] Peck and Scherer, 303-323.
[40] Ibid., chaps. 8 and 9.

individual congressional districts. This new constituency leveraged the jobs, and votes, created by the defense manufacturing workers to influence government decisions relating to weapons procurement.[41] Political capital increasingly became a firm resource to be developed and managed as the firm interacted with the government in the case of the defense establishment.[42] The defense industry became a central participant in the process.

Increasing and evolving the performance of military capabilities throughout the Cold War required substantial research and development funding by the government. Technology was developed to fulfill a military requirement and was built to military specifications intended for a sole customer, the U.S. military. This technology was then incorporated into multiple components by a multi-tiered defense industry and applied across the force in various platforms and in large numbers. Small technologically focused firms contributed to its development, spinning off from university-executed government research and development programs to commercialize the technology. To protect this unique technology, the U.S. government restricted access, thereby denying it to

[41] Prime contractors possess core capabilities of system integration, large-scale production, administrative systems and sales forces that interact with the government's regulation apparatus, and lobbying organizations to influence the weapons procurement process. For further discussion see Gansler, *The Defense Industry*.
[42] See Markusen's discussion of uncertainty in the post-Cold War world where defense firms possess four distinct types of capital: fixed, political, cash, and real estate: Ann Markusen, "The Post-Cold War Persistence of Defense Specialized Firms," in *The Defense Industry in the Post-Cold War Era: Corporate Strategies and Public Policy Perspectives*, ed. Gerald I. Susman and Sean O'Keefe (New York: Pergamon, 1998), 124.

adversaries and ensuring U.S. competitive advantage. The outcome was a robust Cold War defense industry in possession of defense unique technologies.[43]

The U.S. victory in the Cold War fundamentally altered the strategic environment, the national security and military strategies, and the rationale behind the U.S. procurement programs. With the increase of external uncertainty, the factors creating internal uncertainty heightened. The relationships between members of the defense establishment changed, and public accountability and sensitivity to defense industry influence on government resource decisions increased. Additionally, U.S. efforts to evolve and transform the joint force exploited a Revolution in Military Affairs (RMA), transforming it from a Cold War platform-based force built on a large scale, designed to be employed in mass, to a smaller force composed of a portfolio of capabilities built around common user networks, employing precision munitions that leverage information and communication technologies. The effort to transform the force would allegedly restructure the defense industry by replacing established system integrator firms with new firms based on new technologies.[44] New firms built around evolving and re-combining technologies provide the government with the ability to address external uncertainty by creating technology generation options other than those presented by the major defense firms, both in the near term and for future

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[43] The articulation and review of the transition from Cold War to post-Cold War technological strategy is captured in Ashton B. Carter, "Keeping the Technological Edge," in *Keeping the Edge: Managing Defense for the Future*, ed. Ashton B. Carter and John P. White, BC SIA Studies in International Security (Cambridge, MA: MIT Press, 2001), 129-164.

[44] Eugene Gholz, "The RMA and the Defense Industry," in *U.S. Military Innovation Since the Cold War: Creation Without Destruction*, ed. Harvey M. Sapolsky, Benjamin H. Friedman, and Brendan Rittenhouse Green (New York: Routledge, 2009), 172-197.

development.[45] Furthermore, the shift in relationships within the defense establishment is reflected in the move away from military capabilities whose underlying technologies are based on military specifications, and toward technology developed for commercial purposes that can support military applications.[46] The government's selection of technology, supplying firms, and acquisition strategy becomes critical when balancing the production factors of cost, schedule, and quality.

Although the defense industry is an entity external to the government decision-making process, its influence on the military procurement process is substantial. By the time President Eisenhower left office in 1961, he cautioned U.S. policy makers about the economic and political consequences of the growth and influence of the "military-industrial complex."[47] He urged, "We must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous use of misplaced power exists and will persist."[48] President Eisenhower may have been prescient. Today, scholars argue that the military industrial complex holds a strong influence

[45] James M. Hasik, *Arms and Innovation* (Chicago: University of Chicago Press, 2008), 145-148.
[46] Carter, "Keeping the Technological Edge," 129-179.
[47] The underlying premise of the concept of "the military-industrial complex" originates in a discussion by C. Wright Mills in *The Power Elite* (New York: Oxford University Press, 1956). Mill's basic concept is that a small group of American elites control national policy. Using this logic, a small number of leaders in large defense firms who became members of the small group of elites could influence governmental decisions. The alternative interpretation is that structural linkages across institutions in society were created to confront external threats. For further discussion, see Charles C. Moskos, Jr. "The Military-Industrial Complex: Theoretical Antecedents and Conceptual Contradictions," in *The Military-Industrial Complex: A Reassessment*, ed. Sam C. Sarkesian (Beverly Hills, CA: Sage Publishing, 1972).
[48] Dwight D. Eisenhower, "Farewell Radio and Television Address to the American People," in *Public Papers of the President of the United States: Dwight D. Eisenhower, 1960-1961.* (Washington, DC: U.S. Government Print Office, 1968), 1035-40.

on the procurement process outcome, as well as a pervasive influence on society as a whole.[49]

The second major change to the governance structure of the defense establishment occurred with the adoption of the Goldwater-Nichols Defense Reorganization Act of 1986, in which Congress legislated significant changes to the governance structure for defense planning and the conduct of operations. The intent of these structural changes was to further reduce the influence of the individual services, principally by increasing the influence of the Chairman of the Joint Chiefs of Staff as the principal military advisor to the President and the Secretary of Defense and the command authority of the Unified Geographic Combatant Commanders for conducting operations. At the same time, the statutory creation of the Specified Unified Combatant Commanders provided a bureaucratic voice for the commander responsible for functional capabilities shared across all geographic Areas of Responsibility. For example, the United States Transportation Command retains the authority to centrally direct assets from all services to provide inter-theater movement by sea, land, or air for all the military deployments of the Joint Force. The centralization of authority theme also extended to the development of military capabilities. The Chairman of the Joint Chiefs of Staff is required to provide his independent assessment of the balance between the operational requirements of the Unified Geographic Combatant Commanders, those who fight the force, and the vision of the military services, those who build the force. However, this reform left in place the role of

[49] See Nick Turse, *The Complex: How the Military Invades Our Everyday Lives* (New York, NY: Metropolitan Books, 2008).

the services for implementation of the development decision because the military services conduct defense planning and programming, which includes budgeting for the development and the execution of procurement of capabilities and weapon systems. [50]

Additionally, the legislation created the United States Special Operations Command (USSOCOM), a Specified Unified Combatant Command, which is a joint organization that consists of special operations components from each of the other military services, and established the position of Assistant Secretary of Defense for Special Operations and Low Intensity Conflict, an office that serves a policy oversight function and advisor to the Secretary of Defense on these two topics.[51] This law provided USSOCOM with a unique mix of both combatant command authorities and service-like responsibilities for developing and procuring the peculiar capabilities that the Special Operations Forces (SOF) require[52] and that are executed through Major Force Program Eleven (MFP-11).[53]

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[50] The foundational source for understanding the Goldwater Nichols-Act is James R. Locher, *Victory on the Potomac* (College Station, TX: TAMU Press, 2004). For a comprehensive examination of the impact of the Goldwater-Nichols Act on the Joint Force, see D. Robert Worley. Chapters 8 and 9 focus on the Joint Force and the contributions of the general purpose and special operations forces by service.

[51] For further detail, see U.S. Congress, *Unified Combatant Command for Special Operations Forces*, U.S. Code, Title 10, Subtitle A, Part 1, Chapter 6, Section 167, Washington, DC, 1986, available at http://assembler.law.cornell.edu/uscode/10/usc_sec_10_00000167----000-.html (Accessed September 22, 2009). Note that the title and responsibilities have expanded to ASD/SOLIC and IC. IC refers to Integrated Capabilities. This extends the policy oversight of this position to all warfighting capabilities in both the general purpose forces and the Special Operations Forces.

[52] Ibid. The full details of this process are classified, an unclassified history of USSCOM is available from "US SOCOM History," 6th ed., March 2008, http://www.fas.org/irp/agency/dod/socom/index.html (accessed December 14, 2011).

[53] Major Force Programs 1 through 11 are described in "Budget Treatment of Funding for Department of Defense's RDT&E and Science and Technology Activities,"

The initial legislation stipulated that “the principal function of the command is to prepare special operations forces to carry out assigned missions.” Specific authority granted included: “Exercising authority, direction, and control over the expenditure of funds with respect to … a. developing strategy, doctrine and tactics … c. 4.a.(i) Development and acquisition of special operations-peculiar equipment. (ii) Acquisition of special operations – peculiar material, supplies, and services.” Note that this legislation stipulated that the Commander, United States Special Operations Command would function as Specified Unified Commander, or force provider to the Geographic Combatant Commands, just as in the military services. However, the Secretary of Defense, through the Unified Command Plan of 2003, designated the Commander, USSOCM as a supported commander or Combatant Commander with a global Area of Responsibility for the synchronization of Department of Defense efforts in the Global War on Terror as well as designated operations. USSOCOM's unique mix of authorities, then, is the combination of operational authorities of a Joint Unified Commander that, unlike other Joint Unified Commanders, possesses the authority, direction, and control over the expenditure of funds that a military service possesses. In effect, the Goldwater-Nichols legislation institutionalized USSOCOM as a critical actor in the defense procurement process.[54]

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http://www.cbo.gov/ftpdocs/89xx/doc8913/AppendixA.4.1.shtml, (accessed September 26, 2009).

[54] Interpretation of the Goldwater-Nichols legislation and acceptance of USSOCOM as an institutional player with fiscal responsibilities was neither unanimous nor without bureaucratic tension and opposition. For an authoritative description of the evolution of USSOCOM's role in exercising its budget authority, especially over that of Naval Special Warfare, and its impact on the Planning Programming and Budgeting System, see Marquis, 208-226. Additional discussion on USSOCOM bureaucratic and organizational

Special Operations Theory and History

At this point, we need to take a time-out and briefly explore the theoretical and historical foundation to understanding Special Operations in order to understand why SOF exists and the context in which USSOCOM was created. The scholar Colin Gray is widely considered the principal theorist of modern special operations. Modern special operations begin with the experiences of World War II. He identifies six distinctive characteristics of special operations in his authoritative book *Explorations in Strategy*: They are clandestine, covert or overt in nature, unorthodox, small in scale, contain high risk, are directed toward significant political and military objectives, and hold foreign policy impact. He finds that "special operations are operations that regular forces cannot perform and SOF are forces selected, trained and employed to perform tasks that regular forces cannot perform. To restate the point from a different perspective, special operations lie beyond the bounds of the routine tasks of war." He further concludes that special operations' major claims on strategic utility, which is why governments build and fund SOF, are expansion of choice and economy of force. He also identifies a secondary utility of SOF as a source of innovation for the conventional forces.[55] James Kiras builds on Gray's findings and argues in his

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context can be found in Thomas K. Adams, *U.S. Special Operations Forces in Action: The Challenge of Unconventional Warfare* (New York, NY: Frank Cass Publishers, 1998), 172-209.

[55] Colin Gray, *Explorations in Strategy: Contributions in Military Studies* (Westport, CT: Greenwood Press, 1996). Also see Colin Gray, "Handfuls of Heroes on Desperate Ventures: When Do Special Operations Succeed?" *Parameters* 29, no. 1 (Spring 1999): 1-21. Concept articulated in Bernd Horn et al., *Force of Choice: Perspectives on Special*

book *Special Operations in Strategy* that SOF's strategic performance, their impact on the outcome of the war, is based on improving the performance of the conventional force.[56]

Joint doctrine derived from this theoretical foundation states that SOF conduct special operations in hostile, denied, or politically sensitive environments to achieve military, diplomatic, informational, and/or economic objectives that carry strategic and operational significance. Special operations are conducted independently, in conjunction with conventional forces or with other government agencies. They may be conducted by, with, or through indigenous or surrogate forces. Special operations differ from conventional operations in degree of physical and political risk, operational techniques, use of special equipment, modes of employment, independence from friendly support, and dependence on detailed operational intelligence and indigenous assets. These operations may require low-visibility, clandestine, or covert capabilities. SOF employs military capabilities for which there is no broad conventional force requirement.[57] Specifically applied to this study, SOF performs functions in the maritime domain that naval forces do not perform.

The war in Vietnam, the military catastrophe at Desert One during Operation Eagle Claw, and the destruction of the Taliban in Operation Enduring

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Operations (Montreal: Queen's University Press, 2004). For current conceptions, see Malvesti, *Special Operations Forces in an Age of Persistent Conflict.* Also see Thomas Sass, in "Finding the Right Balance: Special Operations Forces as an Economy of Force Capability," in *Special Operations Forces: A National Capability*, ed. Emily Spencer (Kingston: CDA Press, 2011), 142-170.

[56] James Kiras, *Special Operations and Strategy from World War II to the War on Terrorism*, Cass Series-Strategy and History (New York: Routledge, 2006).

[57] United States Army, *FM 3-05.1: Army Special Operations Forces* (Washington, DC: Headquarters, Department of the Army, 2006).

Freedom in Afghanistan are central to the evolution of U.S. SOF and central to understanding the historical context in which USSOCOM executes its statutory responsibility to develop and acquire Special Operations peculiar capabilities. The capabilities that SOF brought to each of these events varied dramatically and reflect the bureaucratic and organizational structure of the Department of Defense and the governance structure that oversaw the development of SOF capabilities and their operational employment.

After the escalation of the Vietnam War in 1965, SOF's principal role was in support of conventional operations. Army Special Forces were employed as light infantry and air assault troops, such as the Mike Strike Forces, in support of conventional search and destroy operations. Naval Special Warfare forces operated in the Rung Sat Special Zone or further south in IV Corps in the Mekong River Delta in support of naval operations such as Market Time, whose objective was to secure the maritime lines of communication to Saigon, a traditional naval function. Years of sustained combat operations in Vietnam on a significant scale provided the opportunity for SOF to demonstrate its theoretical framework of enhancing the performance of the conventional force.

Consistent with history, the United States demobilized after the war and dramatically reduced force structure. SOF, then part of the military services, did not escape the culling. Susan Marquis in her book *Unconventional Warfare: Rebuilding U.S. Special Operations Forces* articulates that defending the "precarious value" of SOF, which had been "developed to solve problems that could not be resolved by conventional military force," was exceedingly difficult.

Distinctive cultural and organizational identities among the individual service components of SOF proved hard to bridge after the demands of sustained operations ended. Of particular relevance to this study, Naval Special Warfare (NSW) recognized the need to articulate their precarious value during post-Vietnam timeframe and survived the bureaucratic battle for organizational survival by linking itself to the operational requirements of the fleet. NSW adapted and defined itself around mission sets that supported the Navy's role of power projection ashore in the maritime environment in accordance with the Navy's dominant concept of war. NSW focused on the core capability of access in the maritime environment to support naval sea control and power projection functions that the Navy's principal formations, the Carrier Battle Group and the Amphibious Ready Group, provided. Under this operating concept, NSW was relegated to an enabling capability that performed supporting roles in naval power projection functions. Under this concept, they were second priority and subsequently under-resourced.[58]

The catastrophic failure at Desert One during Operation Eagle Claw, the aborted attempt to rescue American hostages held in Iran, dramatically illustrated the impact of the military services under-resourcing of special operations capabilities in the post-Vietnam era and is fundamental in understanding the development of USSOCOM. During Operation Eagle Claw, the valiant efforts of the assembled ad hoc force could not overcome the systematic and institutional obstacles present in the U.S. military, dominated by the military services, to perform a specified task within the political constraints imposed by the president.

[58] Marquis and Adams.

In a congressionally mandated post-incident investigation, the *Halloway Report* specifically identified the need for a standing joint task force with assigned forces to perform specific mission sets that fell outside the capability of the conventional force. That tactical failure proved to be a strategic success, as it served as a catalyst to alter the structure of the Department of Defense. The Goldwater-Nichols legislation reformed the organizational and governance structure of the U.S. Military as whole, and for the purposes of this study, increased the importance of the Unified Combatant Commanders in the conduct of operations but left the military services in control of the development of military capabilities, forces, doctrine, and the programming and budgeting of appropriated resources. However, Congress remained concerned over the organizational structure that continued to place the resourcing of the Special Operations Forces under the purview of the military services as inadequate to ensure a high state of readiness and the advocacy over their employment under the purview of less than a Unified Combatant Commander.[59] To address the concern, Congress created the United States Special Operations Command, and provided it with a unique mix of combatant command and service-like responsibilities and tools to fulfill its congressionally dictated mandate.[60]

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[59] U.S. Congress. Senate. *Hearing Before the Subcommittee on Sea Power and Force Projection*. S. 2453, 99th Congress, 2d sess., (August 1986), 23-24.

[60] Nunn-Cohen Amendment to the 1986 Goldwater Nichols Defense Re-organization Act. Section 167 of Title 10 US Code. Congressional concern continued for some time. Concern over the "implementation of Special Operations Forces reorganization" developed to the point that Congress is seen in the FY-1989 National Defense Authorization Act when the role of the ASD/SOLIC is codified and reinforced. See section 1121. Also see conference report for HR 4481 and Senate report 100-326 on same subject.

SOF has gained prominence since the attacks on the U.S. by Al Qaeda on September 11, 2001. Exhibiting the same strategic utility of expansion of choice and economy of force, SOF does access denied and politically sensitive areas to conduct Unconventional Warfare (UW) and counter-terrorist (CT) operations to destroy the Taliban and disrupt Al Qaeda, supported by conventional forces and other U.S. agencies and instruments of power in an unprecedented manner.[61] SOF's strategic performance continued to follow its historical pattern and improve the performance of the conventional force; however, since the creation of USSOCOM, SOF expanded the scope of its strategic performance to serve as a catalyst to unify, extend the reach and maximize the effects of other instruments of national power.[62] This achievement could not have been possible had USSOCOM not leveraged its statutory and directive authority to influence strategy, develop tactics and doctrine, and control the development and procurement of SOF-peculiar capabilities as it fulfilled its role of preparing SOF as envisioned by the Goldwater-Nichols legislation.

The Joint Strategic Planning Process

Now that we understand the utility of SOF, we return to the structural changes imposed by the Goldwater-Nichols legislation. In keeping with the congressional intent to centralize authority within the defense establishment, Congress increased the prominence and authority of the Chairman of the Joint Chiefs of Staff (CJCS) by assigning the CJCS three overarching statutory

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[61] Christopher J. Lamb and David Tucker, *United States Special Operations Forces* (New York: Columbia University Press, 2007).
[62] Sass, "Finding the Right Balance."

responsibilities and by providing specific authorities and resources to fulfill the roles. The CJCS's "primary roles are to 1) conduct independent assessments; 2) provide independent advice to the President, Secretary of Defense, National Security Council, and the Homeland Security Council; and 3) assist the President and the Secretary of Defense in providing unified strategic direction to the Armed Forces."[63]

The Joint Strategic Planning System (JSPS) is the primary means of the CJCS to meet his statutory responsibilities. It provides a formal structure for the CJCS to effectively perform his assess, advise, and direct functions specified in the Goldwater-Nichols legislation by considering the strategic environment and the alignment of ends, ways, means, risk, and risk mitigation over time. The inputs required by the JSPS provide the CJCS with the most comprehensive view of both the strategic environment and the Joint Force. The JSPS consists of the interdependent subsystems of the Requirements Generation Process, the Planning Programming Budgeting and Execution System, and the Acquisition Process. Throughout the JSPS, the CJCS executes his assess, advise and strategic direction roles through the promulgation of numerous documents and directives over a four-year cycle.[64]

The CJCS assesses and produces his personal advice, independent of the services, to both the civilian leadership in the executive branch of government and to the legislative branches of government. The Comprehensive Joint Assessment

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[63] "Chairman of the Joint Chiefs of Staff Instruction 3100.01B: Joint Strategic Planning System," December 12, 2008, pg. A-1, http://www.dtic.mil/cjcs_directives/cdata/unlimit/3100_01.pdf (accessed December 14, 2011).
[64] Ibid.

(CJA) and a Joint Strategy Review (JSR) are the two documents that provide comprehensive strategy-based assessments across missions, domains, service functions, and time by considering readiness, risk, sufficiency, and Joint Military Requirements. It also describes the security environment for the rest of the defense establishment. All follow-on advice and direction mechanisms build off these two assessment documents.[65] They set the context in which the JSPS will operate.

The CJCS and his staff develop these products through the use of the Joint Requirements Oversight Council (JROC) as an advisory council. Established by the Secretary of Defense, the JROC is intended to advise and assist the CJCS in performing his statutory responsibilities regarding capabilities, programs, and budgets. As such, the JROC extends its visibility across the JSPS. Some specific tasks germane to this study fall within the Requirements Generation Process and include identifying, assessing, and approving joint military requirements submitted by the combatant commanders and military services and ensuring that they meet resource and strategic-level guidance, identifying core mission areas associated with each requirement, assigning a priority level and initial operational capability time frame for each requirement, considering alternatives to material solutions, balancing the trade-off of cost, schedule, and performance objectives, and finally, recommending a material development decision.[66]

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[65] Ibid.

[66] "Chairman of the Joint Chiefs of Staff Instruction 5123.01E: Charter of the Joint Requirements Oversight Council," April 17, 2010, Enclosure A, http://www.dtic.mil/cjcs_directives/cdata/unlimit/5123_01.pdf (accessed December 14, 2011).

The CJCS established the Joint Capabilities Integrated Defense System (JCIDS) to support the JROC. This open system systematically identifies, validates, and prioritizes the operational requirements and associated performance criteria of the Unified Combatant Commanders reflected in their Integrated Priority List (IPL) and capability requirements of JROC interests. JCIDS is fundamental to the Requirements Generation Process. The system ensures compliance of established strategic plans in the context of the level of resources that political leaders are willing to allocate to develop technology and create military capabilities. The JCIDS process also supports the acquisition process by articulating the capability needs and associated performance criteria on which the capability will be acquired. It also informs the Planning, Programming, Budgeting, and Execution (PPBE) process by providing development and production lifecycle cost guidelines. As such, it effectively serves an integrating function between the Requirements Process, the Planning, Programming, Budgeting, and Execution (PPBE) process, and the Acquisition Process.[67]

The Chairman's Program Recommendation (CPR) and the Chairman's Program Assessment (CPA) are central to this study. The former provides the

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[67] "Chairman of the Joint Chiefs of Staff Instruction 3170.01G: Joint Capabilities integration and Development System," March 1, 2009, http://jitc.fhu.disa.mil/jitc_dri/pdfs/3170_01g.pdf (accessed December 14, 2011). Also see Defense Acquisition University, *The Defense Acquisition Guidebook* (Fort Belvoir: Defense Acquistion University Press, 2009), available at https://acc.dau.mil/dag (Accessed September 26, 2009). For a comprehensive review of the PPBE system and its links to the Joint Strategic Planning System (JSPS) and the Acquisition Process, see Sullivan, Chapters 2-4. Of particular importance to this study are the requirements generation process and the decision to build a capability. The JCIDS is the point of interaction between the three systems. The system is governed by the Chairman of the Joint Chiefs of Staff. See CJCS Instruction 3170.01G dated 01 March, 2009. For an historical look at the predecessor to the JCIDS, see Carol L. DeCandido, *An Evolution of Department of Defense Planning, Programming, and Budgeting System: From SecDef McNamara to VCJCS Owens* (Carlisle Barracks, PA: U.S. Army War College, 1996).

Secretary of Defense with the CJCS's formal input with regard to the resource allocation and budgeting priorities, including military capabilities. The latter is the CJCS's assessment of the service and defense agencies' Program Objective Memorandum (POM) and Budget Estimate Submissions (BES). With these documents, the CJCS submits his advice to the Secretary of Defense for the Secretary's Program and Budget Review (PBR), the products of the PPBE system. These documents advise the secretary and president as they develop strategic policy direction focused on operational capability priorities, articulated in the Secretary's Guidance for the Development of the Force (GDF). Additionally, these documents inform the services as they develop their plans and operating concepts in support of national priorities. Finally, the CJCS provides numerous reports to both House and Senate Armed Services Committees, including a report on the requirements of the Combatant Commanders.[68]

Oversight is the second principal JROC function and it extends throughout the Acquisition Process. The JROC oversees the formal acquisition milestone reviews and acquisition program decision points to ensure system performance is achieved. There are two types of acquisition processes, evolutionary acquisition and rapid acquisition. This study concentrates on the former and pertains to the tension point between service-generic and SOF-peculiar capabilities and examined in case studies 1 and 2. Case study 3 provides the opportunity to

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[68] Ibid. Strategic-level guidance includes the statutory required National Security Strategy (NSS) issued by the president and the National Military Strategy (NMS) issued by the CJCS. Additional strategic guidance issued by the Secretary of Defense includes the National Defense Strategy (NDS), Guidance for the Development of the Force (GDF), Guidance for the Employment of the Force (GEG), and the Quadrennial Defense Review (QDR).

examine the latter and to explore innovation. "Evolutionary acquisition requires collaboration among the user, tester and developer."[69] This study focuses on USSOCOM serving as a Milestone Decision Authority (MDA), or as an actor who interacts with the MDA, in its ability to leverage its unique authorities in this collaborative environment as well as to act independently.

The JROC oversees the MDA's decisions surrounding its interaction with industry and opportunities for innovation throughout the phases of the acquisition process. The process structurally incorporates opportunities for industry to influence the development of capabilities and to innovate. Upon the JROC's recommendation to pursue a material solution, the MDA releases an Initial Capabilities Document (ICD) and a sequential Material Development Decision Review, which begins the Material Solution Analysis Phase and formally begins the acquisition process. "The purpose of this phase is to assess potential material solutions and determine phase specific entrance criteria for the next program milestone designated by the MDA."[70] During this phase, manufacturing feasibility and technical risk are articulated, specifically considering technologies available through the Small Business Innovation Research (SBIR) program. Additionally, alternatives are analyzed and topics including manufacturing feasibility and technological risk are incorporated.

This process transitions to the Technology Development Phase, whose purpose is to reduce technological risk. During the Technological Development

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[69] "Department of Defense instruction 5000.02: Operation of the Defense Acquisition System," December 8, 2008, Enclosure 2, p. 13, http://www.dtic.mil/whs/directives/corres/pdf/500002p.pdf (accessed December 14, 2011).
[70] Ibid., 14

Phase, the MDA communicates to industry through a Request for Proposals. Communication between the MDA and the Project Manager (PM) is essential. If the Technology and Development Phase outcomes fall outside the parameters endorsed by the JROC, the MDA must intervene and return to the JROC. Prototype performance is the other principal influence into the PM's Program Design Review (PDR) prepared for the MDA's Milestone B decision. A favorable Milestone B transitions the program into a Program of Record and into the Engineering and Manufacturing Development phase.[71]

The purpose of the Engineering and Manufacturing and Development Phases is to develop a system or an increment of a capability and an affordable and executable manufacturing process. The MDA, Program Executive Officer (PEO), and PM work together and interact with industry to develop an acquisition strategy that balances program trade space with cost, schedule, and performance. Industry interaction with the PM and MDA are critical up to this point. The Engineering and Manufacturing Development phase includes the development and testing of a prototype and concludes with a milestone decision by the MDA that transitions the program into the production and deployment phase, which includes initial operating capacity. At these phase transitions, the JROC oversees the program development. [72]

The CJCS is the chairman of the JROC and has delegated the functional responsibility to the Vice Chief of the Joint Chiefs of Staff (VCJCS). General or Flag rank officers from the military services are voting members of the JROC.

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[71] Ibid.
[72] Ibid.

However, each combatant command is invited to attend JROC meetings in an advisory role. The officials who hold MDA status[73] are integral to the acquisition process in that "the MDA shall make the decision to commit the Department of Defense to production… ."[74] Additionally, the JROC established two subordinate Panels, the Functional Capabilities Board and the Joint Capabilities Board, with associated support staff to assist the JROC to perform its functions.[75]

USSOCCOM, a specified or functional Unified Combatant Command, identifies and validates operational requirements of its service components and either submits these requirements to the JROC as an input into the JCIDS process to influence Service Generic capabilities or independently allocates its MFP-11 resources for SOF-peculiar capabilities in accordance with its statutory responsibilities. To effectively execute this process, the Commander, United States Special Operations Command, employs the SOF Capabilities Integration and Development System (SOFCIDS).

SOFCIDS is internal to USSOCOM and is compatible with JCIDS. Adapted from JCIDS under the authority provided by the JROC, SOFSCIDS provides USSOCOM with a means to present SOF-peculiar capabilities requirements amongst the SOF service components and introduce them into the joint force requirements process via the JCIDS for JROC consideration, just as the general purpose force components and field activities of the joint force. The JROC delegated authority to USSOCOM to determine SOF-P capabilities for

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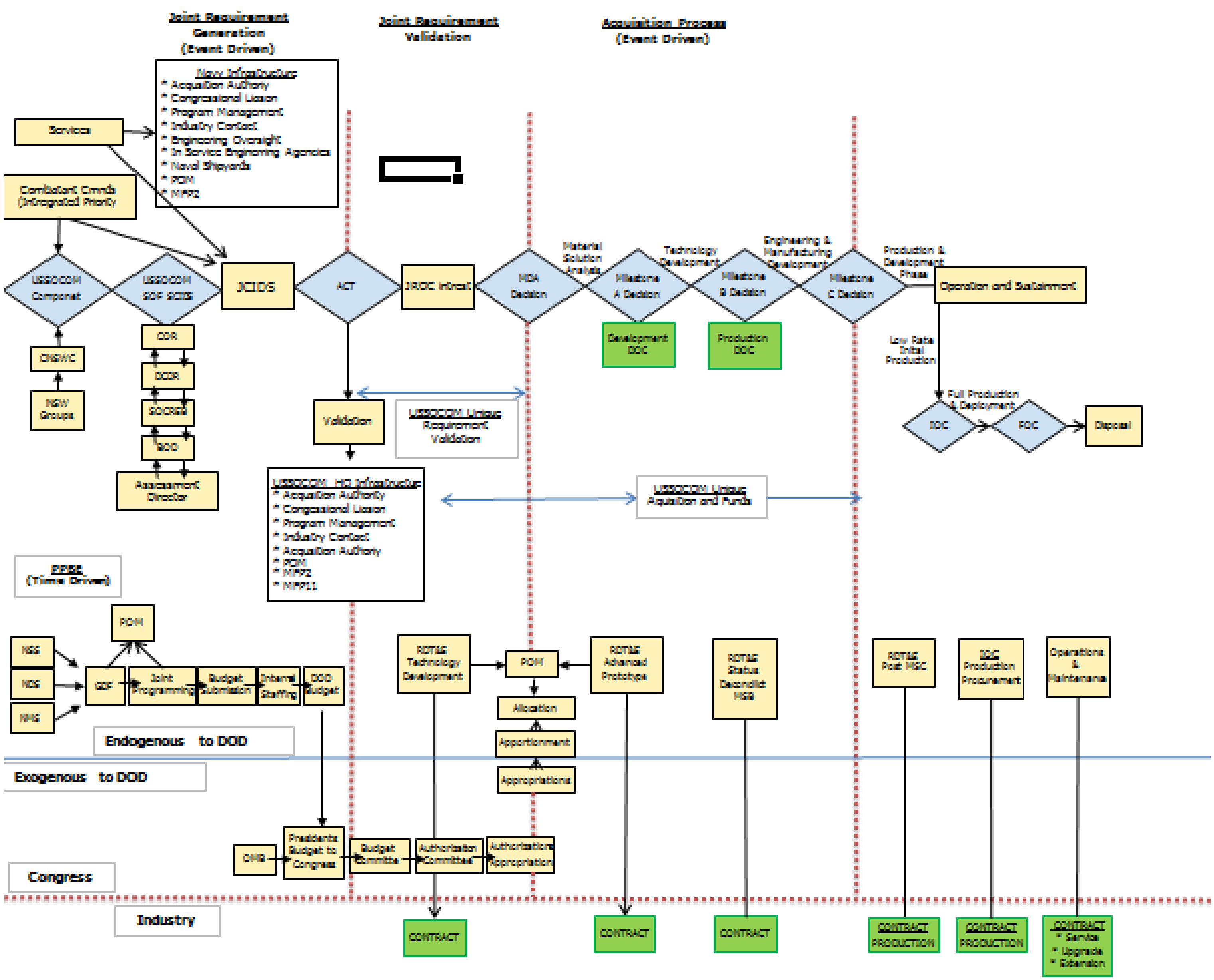
[73] Ibid., p. A-5.
[74] This commitment occurs at Milestone C and will be discussed in following paragraphs. Department of Defense Instruction 5000.02, Enclosure 2.
[75] Chairman of the Joint Chiefs of Staff Instruction 5123.01E, 1.

requirements below the threshold categorized for JROC interest. USSOCOM exercises that authority through the Special Operations Capabilities Requirements Board (SOCREB), which is composed of the flag-level component commanders of each USSOCOM service component. Additionally, the Commander of USSOCOM has delegated the approval authorities to the Special Operations service component for certain Special Operations-peculiar capabilities. Interestingly, USSOCOM has two unique structural aspects to its capability requirements process. Headquarters staff elements can provide capability requirements into the SOFCIDS process, providing USSOCOM with both bottom-up and top-down means to generate requirements. A process also is in place to validate the transfer of Special Operations-peculiar capabilities from one service component to the other via SOFCIDS process and approval of the SOCREB. These two requirements generating aspects are unique to USSOCM and structurally enhancing innovation.[76]

[76] "USSOCOM Directive 71-4: Special Operations Forces Capabilities Integration and Development System." June 9, 2009.


Joint Requirement Generation (Event Driven)
Joint Requirement Validation
Acquisition Process (Event Driven)
Navy Infrastructure
* Acquisition Authority
* Congressional Liaison
* Program Management
* Industry Contact
* Engineering Oversight
* In Service Engineering Agencies
* Naval Shipyards
* POM
* MFP2
Services
Combatant Cmnds (Integrated Priority
USSOCOM Component
USSOCOM SOF SCIS
JCIDS
ACT
JROC Intrest
MDA Decision
Material Solution Analysis
Milestone A Decision
Technology Development
Milestone B Decision
Engineering & Manufacturing Development
Milestone C Decision
Production & Development Phase
Operation and Sustainment
Development DOC
Production DOC
Low Rate Initial Production
Full Production & Deployment
IOC
FOC
Disposal
CNSWC
NSW Groups
COR
DCOR
SOCREB
BOD
Assessment Director
Validation
USSOCOM Unique Requirement Validation
USSOCOM HQ Infrastructure
* Acquisition Authority
* Congressional Liaison
* Program Management
* Industry Contact
* Acquisition Authority
* POM
* MFP2
* MFP11
USSOCOM Unique Aquistion and Funds
PPBE (Time Driven)
NSS
NDS
NMS
POM
GDF
Joint Programming
Budget Submission
Internal Staffing
DOD Budget
Endogenous to DOD
Exogenous to DOD
RDT&E Technology Development
POM
Allocation
Apportionment
Appropriations
RDT&E Advanced Prototype
RDT&E Status Deconflict MSB
RDT&E Post MSC
IOC Production Procurement
Operations & Maintenance
OMB
Presidents Budget to Congress
Budget Committee
Authorization Committee
Authorization Appropriation
Congress
Industry
CONTRACT
CONTRACT
CONTRACT
CONTRACT PRODUCTION
CONTRACT PRODUCTION
CONTRACT
* Service
* Upgrade
* Extension

Although intended to mitigate organizational and bureaucratic political influence and sub-organizational competition, JCIDS, and accompanying SOFCIDS, employing systems analysis does not completely achieve that goal and is incomplete in explaining the development and procurement of special operations-peculiar capabilities. The actors involved in the process, including within USSOCOM, belong to sub-organizations across the Department of Defense and are subject to organizational and bureaucratic imperatives. These imperatives have led to organizational and bureaucratic strategies of differentiation that have resulted in non-cooperative behavior and organizational conflict.

Theory Review

Organizational and Bureaucratic Politics Models

At this point, the literature describing the historical and strategic context and the purpose behind the United States' development and creation of naval and special operations-peculiar capabilities and the relationship between Naval and Special Operations Forces has been reviewed. Additionally, the structure of the defense establishment, including both the identification of the participating actors and the decision process, has been described. This chapter shifts its attention to reviewing the theory behind the decisions and actions taken by the participants in the process, both those endogenous and those exogenous to the Department of Defense. In particular, this section will review the literature on organizational and bureaucratic decision making in the context of the defense establishment and resource allocation.

This study will synthesize this literature and articulate an organizational and bureaucratic paradigm that will serve as a basis of analysis for investigating the principal research questions surrounding USSOCOM's performance leveraging its unique authorities to create SOF-peculiar capabilities. Then rational choice theory will be presented as the accepted theory that informs organizational strategy for interacting and participating in the bureaucratic decision-making process that allocates resources amongst sub-units. Resource based theory, a strategic management theory, will be introduced as an alternative to rational choice theory. Instead of following the accepted strategy of organizational differentiation leading to competition, resource based theory focuses on the core competencies of an organization and identifies co-specific tasks to link competencies across organizational lines, encouraging cooperation for resources within the bureaucratic decision-making process. Finally, the literature on military innovation will be presented to provide a theoretical foundation for analyzing the innovation theme that runs through this study.

"Decision making is simply the act of choosing among available alternatives about which uncertainty exists."[77] Scholars have employed various bodies of literature to study decision making. This study recalls decision making in the context of governance and defense planning with the employment of systems analysis to identify the expected utility of prioritized capability attributes, initially introduced with Hitch and McNamara and the Planning, Programming, and Budgeting System in the 1960s and carried out today in the Joint Strategic

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[77] James E. Dougherty and Robert L. Pfaltzgraff, Jr., *Contending Theories of International Relations: A Comprehensive Survey,* 4th Edition (New York: Addison-Wesley, 1997), 457.

Planning System as recounted above. The JSPS fits a multiple advocacy model that captures the perspective of multiple organizational sub-units focused on narrow tasks and encourages competition between the sub-units. The system encourages centralization and increases the information flowing to and the options available to the senior decision maker in the larger organization, in this case the Secretary of Defense, the Chairman of the Joint Chiefs of Staff, and necessarily Congress, from across the sub-units of the bureaucracy.[78]

In his classic work, *Essence of Decision*, Graham Allison presented three decision making models: the rational actor, organizational process, and bureaucratic politics.[79] Model 1, the rational actor model, stated that the government as a whole functions as one rational actor making a decision by considering available options and the consequences presented by the options that maximize the government's ability to achieve its singular objective. Model 2, the organizational process models, described a decision output of a large organization where the process outcome is determined by the individual output of different sub-organizational units within a large fixed organizational structure. Model 3, the bureaucratic politics model, acknowledged that government was not a unitary actor and that decision making became an output of bargaining, negotiating skill, and relative power of the participating actors. These three models continue to serve as the foundation for understanding government decision making to this day. Originally presented as three distinct models to explain foreign policy

[78] Ibid., 461. The Multiple Advocacy Model was articulated by Alexander George. Also called a mixed system.
[79] Graham Allison, *Essence of Decision: Explaining the Cuban Missile Crisis* (Boston, MA: Little, Brown and Company, 1971), 67-75.

decision making, the three models have been critiqued, tested, and refined over time. In the end, Allison and Zelikow republished the *Essence of Decision* and acknowledged the critiques, emphasized the complementary nature of the organizational process and bureaucratic politics models, presented organizing concepts and conceptual questions that reflect resource allocation concerns in the organizational process and bureaucratic politics models, and presented four propositions qualifying and guiding its application.[80] This section traces the evolution of this literature.[81]

Allison's organizational process describes a decision output of a large organization, such as the Department of Defense. The essential elements of the model included organizations that feature the division of labor into rigid structure of sub-organizational units, where each sub-unit within the structure performs routines according to standard operating procedure, producing organizations that are bounded in their rationality and perspective based on function, routine, and standard operating procedure. According to this theory, the process outcome is determined by the individual output of different sub-organizational units within a large fixed organizational structure. Because power is shared, the basis of action, or decision, is accomplished through coordinating efforts and interaction

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[80] Graham Allison and Philip Zelikow, *Essence of Decision: Explaining the Cuban Missile Crisis, 2nd Edition* (New York: Addison Wesley, 1999), 385-405.

[81] Allison's classic study has been the basis for continued research on organizational process in the international relations and security studies fields since its introduction. David A. Welch, "The Organizational Process and Bureaucratic Politics Paradigms: Retrospect and Prospect," *International Security* 17, no. 2 (Autumn, 1992): 112-146. Also see Jack S. Levy, "Organizational Routines and the Causes of War," *International Studies Quarterly* 30, no. 2 (Jun. 1986): 193-222. Also see Anne M. Khademian and Kenneth Mayer, "Bringing Politics Back In: Defense Policy and the Theoretical Study of Institutions and Process," *Public Administration Review* 56, no. 2 (Mar.-Apr., 1996): 180-190.

according to fixed operating procedures. The basis of action, or decision, of this model is that the actors understand the organization's larger objective and their sub-organizational units' roles in supporting a decision. However, they cannot control output, but can only influence it. Because the coordination costs are high, coordination is limited.[82]

Allison's bureaucratic politics model recognizes that a monolithic organization does not exist, that power is shared, and that actors in the process may or may not share the same larger organizational objectives. The bureaucratic model addresses why any number of participating leaders within a large hierarchical organization that operates under some form of transparent and established process to guide deliberate decision making and action would either positively or negatively influence a process outcome. Sub-organizational unit goals or personal interests and perspectives enter into the calculus of the actor. The essential elements of the model state that the sub-organizational units form a closed group of decision process participants, that each sub-organizational unit rationally follows their parochial agenda governed by sub-organizational unit imperative, that the institutionalized procedures provide the action channels in which pulling and hauling between individual actors occurs. The outcome of the

[82] Allison, *Essence of Decision,* 67-100. Also see Allison and Zelikow, *Essence of Decision*, 143-185. For a discussion on the impact of the organizational process model on government decision in a recent context, see Charles F. Parker and Eric K. Stern, "Blindsided? September 11 and the Origins of Strategic Surprise," *Political Psychology*: *Special Issue: 9/11 and Its Aftermath: Perspectives from Political Psychology* 23, no. 3, (Sep., 2002): 601-630.

bargaining is evident in the decision and depends on the relative power of the individual actors.[83]

Allison refined his thinking in 1972. Relevant to this study, he introduced the idea of the bureaucratic politics model as an analytic paradigm that identified relationships between actors that produced governmental decisions vice a predictive model that projected the decision outcomes of the actors, specified an organizing concept, and qualified intra-national decisions vice foreign policy decisions as the most useful application of the paradigm. The analytic paradigm captures basic sets of assumptions, concepts, and suggestive propositions or relationships by the participants in the process directed toward the basic unit of analysis captured by the governmental decision. Participants influence the decision through the established action channels, or decision process. Opportunities to influence the process take place during decision games, policy games, and action games:[84] "For purposes of analysis we will identify the activity of players leading to decisions by senior players as decision games, activities leading to policy as policy games, and activities that follow from, or proceed in the absence of, decisions by senior players as action games."[85]

The organizing concept behind the closed system is refined at this time. The fundamental questions of who plays, what determines their stand, how players are integrated, what their organizational constraints and SOPs are, and what information is available to them become essential aspects of the analytical

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[83] Allison, 144-182. Also see Allison and Zelikow, 255-324.
[84] Graham T. Allison and Morton H. Halperin, "Bureaucratic Politics: A Paradigm and Some Policy Implications: Supplement: Theory and Policy in International Relations," *World Politics* 24 (Spring 1972): 43-46.
[85] Ibid., 46.

paradigm. Of these elements, shared values in an operational concept at the sub-organizational and organizational levels would likely have significant impact on a participant's ability to influence the action channel. Additionally, a sub-unit's organizational constraint focusing on its function and built-in capabilities impacts the alternatives available to the policy decision maker to choose from. Allison and Halperin note that this phenomenon was clearly demonstrated in intra-national decisions, specifically weapons systems alternatives and multi-service military operations;[86] however, they were writing before the Goldwater-Nichols legislation and the creation of the Joint Force.

The initial critique was published in 1972 by Stephen Kranser. He questioned the implication that the organizational process and bureaucratic politics models implied political non-responsibility and discounted the influence of the president. He stated that the key to the rational actor model was the power of the public to punish the president by voting him, and therefore the civilian political appointees that oversee the executive branch of government, out of office. He further argued that, in order for the government to deliver a public good, bureaucracies are designed to be rigid based on organizational function and that their bureaucratic interests focus on maximizing that organization's function. Bureaucratic interest then is tied to budget allocation and scope of the organization. Consequently, the cost of coordinating activities across

[86] Ibid., 55. The theme of the model being viable for intra-governmental resource allocation is highlighted by other scholars. See David A. Welch, "The Organizational Process and Bureaucratic Politics Paradigms: Retrospect and Prospect," *International Security,* 17, No. 2 (Autumn, 1992): 112- 146.

organizational lines is high, and the structure of the action channel affects the formulation of policy options.[87]

Robert Art followed with his critique in 1973. Art articulated two fundamental weaknesses in Allison's argument. First, the domestic mindset was underestimated. Second, the models were non-operational or testable. With regard to the former, Art claimed that in the American context, Allison had neither considered the influence of Congress in both the formulation and implementation of foreign policy nor a larger domestic perception of the international security environment, or the threat to the nation, and the link to defense appropriations. At the time of this writing, it was the middle of the Cold War and the country was at odds over the Vietnam War. Additionally, Art identified that in the American tradition, decisions based on consensus come at the cost of compromise of any given position. With regard to the latter, the models did not produce a causal relationship that was repeatable and testable; however, he proposed that the organizational process and bureaucratic politics models were useful for serving as a framework to systematically capture both the domestic political considerations and the organizational constraints present during a decision-making process. [88]

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[87] Stephen D. Krasner, "Are Bureaucracies Important? (Or Allison Wonderland)," *Foreign Policy*, No. 7 (Summer, 1972): 159-179.

[88] Robert Art, "Bureaucratic Politics and American Foreign Policy: A Critique," *Policy Sciences* 4, no. 4 (Dec. 1973): 467-490. Other scholars claim that the models are not testable. See Jonathan Bendor and Thomas H. Hammond, "Rethinking Allison's Models," *The American Political Science Review* 86, No. 3 (Winter, 1999-2000): 5-51; also see Nelson Michaud, "Bureaucratic Politics and the Shaping of Policies: Can We Measure Pulling and Hauling Games?" *Canadian Journal of Political Science / Revue canadienne de science politique* 35, no. 2 (Jun., 2002): 269-300. Michaud applies the Allison structural framework by tracing the action channels and rules of the game in the formulation of Canadian Defense Policy and finds gaps.

He articulated several propositions relevant to this study. Namely, the higher the position of the participant in the decision process, the more influenced that individual is by a larger idea versus an organizational imperative. Moreover, policy implementation becomes more subject to bureaucratic imperatives, which are those decisions that allocate resources to the means of carrying out a policy decision. He qualified these types of decisions as institutional issues, where the effects of resource allocation have a direct and immediate effect on the viability of an organizational unit or on the implementation of a policy.[89] Thus, the lower the decision-process participant is in rank, the more likely that individual is to take on an institutional imperative. If the issue is not of concern to either the president or Congress, then the bureaucrats get their way. If, however, the issue captures congressional or presidential attention, political constraints become the more relevant influence.[90]

Art illustrates the point with an example that is particularly germane to this study. Congress's final amendment to the 1947 National Security Act in 1958 centralized the power of the Secretary of Defense in the creation of military capabilities to meet the technical challenges posed by the Soviet Union.[91] As discussed in the first part of this chapter, President Eisenhower was influential in this amendment. He had been trying to strengthen the position of the Secretary of

[89] Ibid., 476.
[90] Ibid., 484. Ralph S. Bower and Mitchel Y. Abolafia confirm this observation when they argue that bureaucrats are not motivated by larger ideas but by self-esteem, individual identity, and career aspirations. See Mitchel Y. Abolafia and Ralph S. Bower, "Bureaucratic Politics: The View from Below," *Journal of Public Administration Research and Theory: J-PART* 7, no. 2 (Apr., 1997): 305-331.
[91] Ibid., 485-486.

Defense as a means to balance the power of the services since the days following his assignment as the senior field commander in Europe during World War II.

Stephen Parker, writing at the height of the Cold War, reinforced the concept that military procurement decisions were a form of policy implementation. He examined the bureaucratic politics model in the context of policy formulation. Breaking down policy formulation into stages and types, Parker categorized military procurement activities as strategic type of policy taking place in the policy implementation phase. Perhaps more important for this study, Parker identified the tools available to bureaucratic organizations, highlighting statutory authority granted by the legislative branch of government[92] specifically revolving around budgeting authority. He also articulated that industry influences the governmental decision-making process through its links to the legislative and executive branches of government as well as to military organizations as either a client or a participant.[93]

Finally, Edward Rhodes, writing at the end of the Cold War, tested the accepted notion that bureaucratic politics play an important part in intra-governmental decision making surrounding resource allocation. Employing

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[92] Statutory authority as a bureaucratic resource and the foundation on which the bureaucracy is built is echoed in Larry B. Hill, "Who Governs the American Administrative State? A Bureaucratic-Centered Image of Governance," *Journal of Public Administration Research and Theory: J-PART* 1, no. 3 (Jul., 1991): 261-294. Hill points out that although statutory authority grants bureaucracy a voice in the administrative process, constitutionally granted authority held by Congress is extremely influential in acting as an external force on the bureaucracy. Also see Adam F. West, "Searching for a Theory of Bureaucratic Structure," in *Journal of Public Administration Research and Theory: J-PART* 7, no. 4 (Oct., 1997): 591-613. West discusses the political source of bureaucratic structure, observing that legislators must balance their desire for control of implementation of the intention of the policy against the need to allow bureaucrats the flexibility and authority to aid their implementation of policy.

[93] Stephen Parker, 1981.

quantitative methodology, Rhodes examined resource allocation within the Navy throughout the Cold War against the combat arms line that the Chief of Naval Operations belonged and concluded that the big strategic idea had a greater influence than narrow parochial bureaucratic interests of any given sub-unit organization. Reinforcing Art's 1973 conclusion, a shared image of an operating concept is more important that a decision maker's membership to an organizational sub-unit. He concluded that from 1950–1990, the naval force posture and capability decisions reflected the dominant image of naval warfare: decisive battle on the high seas.[94] Resource allocation and the development of capabilities reflected the Navy's dominant concept of war. However, the threat that the Navy prepared for at the time was singular in nature and fit into the national security strategy that supported the policy of containment established earlier in the chapter. The change in the principal security threat to the United States challenges the Navy's dominant concept of war and therefore presents opportunities in the shared image or big strategic idea surrounding an operating concept for Naval forces.[95]

Finally, Allison and Zelikow published the second edition of *Essence of Decision* in 1999. They presented five propositions, fundamentally re-asserting that the organizational process and bureaucratic politics paradigms are useful for analyzing and managing the sequence of actions in a decision process. Although each model simplifies the enormously complex variables involved with a

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[94] Edward Rhodes, "Do Bureaucratic Politics Matter?: Some Disconfirming Findings from the Case of the U.S. Navy," *World Politics* 47, no. 1 (Oct., 1994): 1-41.
[95] See Cropsey. Also see Benjamin H. Friedman, "The Navy After the Cold War: Progress Without Revolution," in *U.S. Military Innovation Since the Cold War: Creation Without Destruction* (New York: Routledge, 2009), 71-99.

governmental decision process, each model reveals different expectations that, when considered together, provide depth and richness to an analysis and understanding of the influences on the decision process. The utility for the paradigm is greatest in intra-governmental decision making and when an operating concept is clearly understood. Influences on the decision outcome that the organizational process model reveals center around organizational capabilities, constraints, and rigid standard operating procedures focused on identified objectives. Influences on the decision outcome that the bureaucratic politics model reveals center around parochial priorities based on position of individuals and their skill at bargaining and leveraging their relative power within established action channels to achieve their goals. A common sense application of the theory is essential. Finally, the paradigm is useful because it reflects the competing preferences within the governmental decision process and accommodates the tradeoff of multiple priorities.[96]

Rational Choice Theory

Rational choice is predicated on an actor exhibiting goal-seeking behavior. It is based on an individual actor making a choice to gain a payoff based on what the other actors in the procurement process are expected to do. This concept takes form in a three-step process in which the decision maker examines available alternatives and the consequences each option presents, and then chooses the alternative that maximizes the opportunity of the decision maker achieving an objective. This is opposed to the *systems analysis approach*, which analyzes a

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[96] Allison and Zelikow, 379-405.

decision based on utility maximization of an attribute irrespective of the individual preferences of the participants. The essential elements of rational choice theory is that it is based on individual choice that encompass social and political outcomes, that each actor will maximize its perceived preferences, that the preferences are prioritized and transitive, that there is a set structure or number of actors, and that there is an equilibrium that is viewed in relation to actors, choices, and outcomes.[97]

In the security studies field, Game Theory is used as a metaphor for rational choice theory and several elements of the theory are essential to illuminate the rational choice concept. Achieving the goal depends upon the actor developing a "strategy or plan of action covering all contingencies including random exogenous events as well as endogenous behavior by others."[98] A rational actor has the ability to pursue its self-interests, or objectives, while considering the actions based on preferences that the other actor will take in pursuit of its objectives. This realization may require the actor to forgo a choice that presents near-term maximization in an effort to achieve the payoff of long-term preferences and objectives.[99]

In the American context, bureaucratic authority is granted to bureaucracies with differing functional purposes and control ceded to leaders within those organizations. The organizational process and bureaucratic politics models' key features of a complementary set of structural, procedural, and individual elements

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[97] Stephan Walt, "Rigor or Rigor Mortis? Rational Choice and Security Studies," *International Security* 23, No. 4 (Spring 1999): 10-11.
[98] Duncan Snidal, "The Game Theory of International Politics," *World Politics* 38, no. 1 (Oct. 1985): 36.
[99] Ibid., 36.

have been described in the preceding section. The strategic rationality described in this section provides the intellectual means to break bounded rationality held by any actor in the process that is caused by organizational and bureaucratic imperatives or by process outcomes. Moreover, leaders matter; those with both the strategic rationality and the skill to bargain in the action channels drive decisions and outcomes. Rational choice is the dominant approach to governmental decision making.[100]

Innovation

Military innovation occurs along organizational, doctrinal, technological, and cultural lines. Three distinct attributes are present in military innovation. As Grissom notes, "First, an innovation changes the manner in which military formations function in the field… Second, an innovation is significant in scope and impact. … Third, innovation is tacitly equated with greater military effectiveness."[101] The literature on military organization is organized along four primary schools of thought that focus on *civil-military relations, intra-service politics, inter-service politics,* and *organizational culture*.[102]

Posen, from the *civil-military relations* school, argues that influences exogenous to the military services, specifically civilian political authority,

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[100] Paul T Hart and Thomas Preston, "Understanding and Evaluating Bureaucratic Politics: The Nexus Between Political Leaders and Advisory Systems," *Political Psychology* 20, no. 1 (Mar, 1999): 49-98. Preston and Hart build on the work of other scholars who have made the same observation. See Bendor and Hammond, "Rethinking Allison's Models," 301-322. Also see Welch, 112-146.
[101] Adam Grissom, "The Future of Military Innovation Studies," *The Journal of Strategic Studies* 29, no. 5 (2006): 907.
[102] Ibid., 908.

intervene and drive innovation when risks of external threat are high.[103] The intervention by Congress to restructure the Department of Defense, including the creation of USSOCOM, and the intervention by Secretary of Defense Rumsfeld to alter the operating concept that put Special Operations Forces as the supported component during the opening stages of Operation Enduring Freedom in Afghanistan serve as examples of organizational and doctrinal innovation.

Conversely, Rosen of the *intra-service* school argues that military innovation can occur within the military services when a senior-enough officer with control of resources can serve as a benefactor to articulate the innovation and protect those junior officers working under him.[104] The development of aircraft carrier platforms and tactics during the interwar years, the adoption of nuclear propulsion into the submarine service, and the establishment of network-centric warfare are examples of internally driven innovation within the U.S. Navy. Similarly, Cote argues that the source of military innovation occurs within the military services and between both civilian and military leaders as war-fighting service components compete in inter- and intra-service rivalries to provide the national command authority with solutions to perceived strategic and operational problems.[105] Open debate and experimentation become the means to innovate.

The *inter-service* school of innovation focuses on military services competing for scarce resources to address the strategic problems of the time. Competition between the military services over scarce resources ensues and

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[103] Barry Posen, *The Sources of Military Doctrine: France, Britain, and Germany Between the Wars* (Ithaca, NY: Cornell University Press, 1984).
[104] Steven Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca, NY: Cornell University Press, 1984).
[105] Cote as recounted in Dombrowski et al., 18.

drives services to innovate and adjust their core competencies. The classic example of this school is the development of the elements of the strategic deterrence forces of the nuclear triad and the Navy's adoption of the Polaris Missile System and the accompanying ballistic submarine or SSBN.[106]

The emerging alternative to organizational culture is the *cultural innovation* school, which argues that a particular nation's historically based strategic culture affects its ability to innovate. Dima Adamsky concludes from his cross-cultural and comparative analysis of the U.S., Russian, and Israeli experiences that varying strategic culture influences innovation outcome. He observed that in the American experience with the Revolution in Military Affairs that the U.S. maintained a pragmatic approach that in the end treated emerging capabilities as multipliers of existing military organizations and formations without any substantial change to war-fighting doctrine.[107]

New literature on the cultural source of innovation incorporates the assessment of USSOCOM's ability to leverage innovation. Since USSOCOM is at the forefront of the post-9/11 response to emerging security requirements, Spulak argues that USSOCOM should leverage its unique authorities to foster the SOF personnel's cultural strength of creativity to produce bottom-up innovation. In doing so, Spulak implies that USSOCOM should focus on urgent operational needs and create a structure that enhances speed of adoption and transfer of

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[106] Sapolsky, *Polaris System Development.* Also see Grissom, 911.

[107] Dima Adamsky, *The Culture of Military Innovation: The Impact of Cultural Factors on the Revolution in Military Affairs in Russia, the US, and Israel* (Stanford, CA: Stanford University Press, 2010), 61 & 135.

emerging technologies.[108] Moreover, innovation by USSOCM is not limited to exploiting cultural attributes to generate technological innovation. Indeed, Jackson and Long argue that the post-9/11 strategic environment contributed to creating the context for USSOCOM to leverage its unique authorities and drive innovation within the general purpose forces of the Joint Force and the whole of government.[109]

Considering the unique relationship between the private and public sectors of the defense establishment, how the defense industry responds to the technological requirements is one of the themes of this study. Christensen identifies two paths to innovation: disruptive and sustaining innovation.[110] Moreover, it is important to note that innovation occurs over time. Rogers identifies a five-stage innovation process that begins with a recognition stage and proceeds through persuasion, decision, implementation, and confirmation stages.[111]

Firms with established customer relationships find it difficult to produce disruptive innovation because it will necessarily disrupt the relationship. The skunk works model that produced such mechanisms as the SR-71 supersonic reconnaissance airplane is an interesting example, where the demand is met with a

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[108] Robert G. Spulak, Jr., *Innovate or Die: Innovation and Technology for Special Operations*: *JSOU Report 10-7* (Tampa, FL: Joint Special Operations University, 2010).
[109] See Colin Jackson and Austin Long, "The Fifth Service: The Rise of Special Operations Command," in *U.S. Military Innovation Since the Cold War: Creation Without Destruction,* ed. Harvey M. Sapolsky, Benjamin H. Friedman, and Brendan Rittenhouse Green (New York: Routledge, 2009).
[110] Clayton M. Christensen, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail* (Boston: Harvard Business School Press, 1997).
[111] Everett Rogers, "The Innovation-Decision Process," in *Diffusion of Innovations,* 5th ed. (New York: Free Press, 2003), 169.

spin-off organization outside the main organization. Conversely, sustaining innovation occurs in an evolutionary fashion. The U.S. Navy has essentially followed this evolutionary model, particularly since the introduction of steam propulsion plants and naval guns into ship design.[112]

On a broader scale, industry response to military innovation requirements can take either a managed or an unmanaged form. Scholars articulate that the two-tiered industry structure composed of large system-integrating prime contractor and technology- and component-focused sub-contractors will endure. The depth and scope of prime contractors' resources and their core capacity of system integrators provide the capability for managed innovation.[113] Scholars also argue that the small sub-contractor has a valuable role because of their core capability based on a specific technology. In the end, strategic and operational requirements drive organizational and doctrinal innovation and provide the incentive for firms to respond to the resulting technological requirements.[114] More interesting, the small entrepreneurial companies have an opportunity to leverage those core capabilities with alliances and speed of response.[115] These attributes are particularly useful for USSOCOM and its components.

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[112] Karl Lautenschlager, 3-51.
[113] Peter J. Dombrowski and Eugene Gholz, *Buying Military Transformation: Technological Innovation and the Defense Industry* (New York, NY: Columbia University Press, 2006).
[114] Peter J. Dombrowski, et al. *Military Transformation and the Defense Industry after Next: The Defense Industrial Implications of Network-Centric Warfare*, Newport Papers 18 (Newport, RI: Naval War College, 2002), 18. Not all scholars concur. Benjamin H. Friedman argues that the Navy did not respond to the changes in strategic and operational demands in the post-Cold War period. See his "The Navy After the Cold War."
[115] Hasik, *Arms and Innovation.*

Strategic Management's Resource Based Theory

The strategic management literature is important to this study since the principal research questions address capital investment in both the public and private sectors of the defense establishment. In this research, traditional approaches to capital investment and business strategy will first be introduced and then contrasted with resource based theory, a form of strategic management theory that this dissertation seeks to extend to public management in the context of capability development decisions and also to extend to the defense industry.

The challenge is that creating military capabilities often requires quite significant capital investments.[116] A nation must therefore dedicate substantial resources to developing technologies and procuring weapons systems in order to equip technologically advanced military forces. As discussed earlier, force requirements are those capabilities that need to be developed, compared against alternatives,[117] and procured and deployed, all of which derives from the conditions of the external environment[118] as it is perceived by the individual

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[116] On the public side, the scale of the procurement budget or the price of specific programs range well into the billions of dollars. Research and development funding provided by the government against specific requirements determined by the military services were funded by the government. As previously discussed, the Reagan buildup clearly demonstrates the trend. See Wirls and footnote 21. Production capacity required the greatest amount of investment resources by the defense industry and it influenced industry structure. See Gansler, chapters 2-5.

[117] Expected Utility Model has served as the basis for decision under constrained choice since World War II. The model is used in the decision between alternative material solutions in the procurement process. For a survey on the model, see Paul J. H. Schoemaker, "The Expected Utility Model: Its Variants, Purposes, Evidence and Limitations," *Journal of Economic Literature* 20 (June 1982): 529-563. For a description of utilities, see David Lalman and Bruco Bueno de Mesquita, *War and Reason: Domestic and International Imperatives* (New Haven, CT: Yale University Press, 1992), 286-299.

[118] As noted previously, an excellent study capturing the essence of the strategic imperatives presented by the security environment of the Cold War is captured in Richard A. Lacquerment, Jr,. *Shaping American Military Capabilities After the Cold War*, chapter

military services.[119] Established capital budgeting models[120] provide a useful approach to determining the utility of an investment and explaining investment decisions.[121] But this alone is not sufficient for understanding the problem of developing defense technologies.

Net present value is the fundamental tool for determining whether to invest in a project.[122] The basic concept relies on discounted cash flow techniques in which projected costs are subtracted from projected revenue and divided by the risk valuation for each period. If the Net Present Value of an investment is

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2. Edward Rhodes presents a similar argument, stating that between 1950–1990, the essential elements of the U.S. Fleet remained relatively inelastic, focused on capital ships, reflecting a Mahanian vision of fleet engagement, despite shifts in technology, administration, strategy, and strength of the adversary. See Rhodes, 34-37. For an excellent first-hand depiction of this tension caused by uncertainty while grappling with an altered security environment within the defense structure, see Colin Powell with Joseph E. Persico, "When You've Lost Your Best Enemy," in *My American Journey* (New York: Ballantine Books, 1995), 422-445. In this account, he recounts his experience articulating a reduction and composition of the military in what came to be called "the Base Force" in the immediate aftermath of the Cold War.

[119] The dominant concept of war is service-generated and reflects the identity of the service as a basis for decision. The argument is that the services maintain the vision and act upon it. See Builder, p.36. Also see James H. Lebovic, "Riding Waves or Making Waves? The Services and the U.S. Defense Budget, 1982-1993," *The American Political Science Review* 88, no. 4 (Dec. 1994): 839-852.

[120] Multiple decision models exist for determining capital allocation. This study will employ the Net Present Value method, which will be discussed in the following paragraph. Of particular relevance to this study is the concept of demand certainty and its expression in anticipated revenues, an assumption that is difficult to identify during the condition of uncertainty. For further discussion, see Eugene F. Brigham and Michael C. Ehrhardt, *Financial Management: Theory and Practice*, 10th ed. (Mason, OH: South-Western, Thomson Learning, 2002), 506-513.

[121] On the Capital Asset Pricing Model, see James A. Robins, "Organizational Considerations in the Evaluation of Capital Assets: Toward a Resource-Based View of Strategic Investment by Firms," *Organizational Science*, 3, no. 4 (Nov. 1992): 522-536. Robins concludes that the assumptions made with respect to systematic risk in the Capital Asset Pricing Model does not account for firm-specific resources, therefore calling into question the logic of hierarchical organizations as opposed to market exchange. Although the Capital Asset Pricing Model is used for the valuation of equities and calculations at the corporate level for growth and diversification decisions, its relevance to this study is related to systematic risk. Resource based theory provides a framework for valuing idiosyncratic firm resources.

[122] See Brigham and Ehrhardt, 506-513.

positive, the case for funding such an investment is strengthened. Using a Net Present Value approach to evaluating weapons procurement possibilities, however, is difficult at best. All aspects of a Net Present Value present transitive properties to weapons procurement. In particular, the interest rate in a Net Present Value equation is typically assumed to be constant over time. Additionally, the timing of the demand of a military capability challenges the transitivity of Net Present Value. Another aspect of NPV that does not translate into the defense industry or the weapons procurement market relates to external uncertainties, since one cannot predict what may happen in international relations, including the occurrence of war, disruptive technologies, and other political and economic factors.[123] Finally, NPV calculations are ultimately all about money – money flowing out from an organization and money coming back in. Products are merely intermediate goods that exist for the purpose of generating future cash. In weapons procurement, the cash outflow aspects of the decision (procurement costs) are roughly the same, but the gains that come from those expenditures are usually considered in terms of security, which is difficult to translate into some dollars and cents figure.

An alternate view to NPV is *Real Options Theory*, whose fundamental insight is that if one approaches capital investment as an option, but not an obligation, investment decisions can be sequenced over time so that less money is

[123] As previously discussed, predicting change in the strategic environment is difficult and presents a fundamental challenge to anticipating cash inflow and therefore NPV valuations. External uncertainty was originally identified by Peck and Scherer, 57. The Cold War presented relative stability to the defense industry, causing significant investment in procurement capabilities, as previously discussed. See Gansler, *The Defense Industry* and Rogerson, “Economic Incentives and the Defense Procurement Process,” footnote 37.

used early and, as new information becomes available, the money that is held in reserve can then be used more effectively, resulting in better overall investment decisions. Instead of relying on assumptions made early on in the process that can both dramatically distort the NPV and sometimes be significantly inaccurate (e.g., projected operating costs and revenues), the options approach presents a firm with the option to wait until the uncertainty resolves itself.[124] Of particular interest to this study is the relationship between uncertainty, the irreversibility of capital investment, and the early obsolescence of prospective technologies.[125]

The notion that some investments are irreversible, unrecoverable, and therefore represent sunk costs makes *Real Options Theory* highly attractive for studying the weapons acquisition process.[126] Assistant Secretary of Defense for Special Operations and Low Intensity Conflict and Interdependent Capabilities Vickers published his reasons for supporting the Real Options Model in early 2001. His argument is that the United States needs "a procurement strategy in the near to midterm that emphasizes limited productions runs of a wide range of new systems…until uncertainty is resolved concerning which new systems will be

[124] Avinash K.Dixt and Robert S. Pindyck, "The Options Approach to Capital Investment," *Harvard Business Review* (May-June 1995):105-106. See also Ayinash K. Dixt and Robert S. Pindyck, *Investment Under Uncertainty* (Princeton, NJ: Princeton University Press, 1994). Also see Laarni T. Bulan, "Real Options, Irreversible Investment and Firm Uncertainty: New Evidence from U.S. Firms," *Review of Financial Economics* 14 (2005): 256.

[125] For discussion on early obsolescence of military capabilities in the post-Cold War environment, see Andrew Krepinevich, "The Pentagon's Wasting Assets: Washington's Fading Ability to Project Power – and What to Do About It," *Foreign Affairs* 88, no. 4 (July/August 2009): 18-33.

[126] Dixt and Pyndyck, "The Options Approach," 106.

needed for future operations, and the technological flux likely to be associated with these systems has been substantially reduced…."[127]

Although a Real Options approach provides greater financial flexibility, the approach is not risk-free. The slower, more deliberate, sequenced approach to capability development may increase the risk a country faces as a result of the relatively slow pace of capability deployment, which may not be acceptable, especially when the entire point of establishing an operational requirement is to develop technologies to mitigate risk at the strategic, operational, and/or tactical levels of war.

Michael Porter developed a strategy for sustained competitive advantage that was based on understanding the external environment and positioning the firm to exploit it, using five factors to understand industry.[128] The model required the firm to understand the bargaining power that could be exercised by buyers and suppliers, as well as the threats posed by substitutes and new entrants. The firm and its competitors stood in the middle of these industry forces, each competing with other firms in specific markets. However, firms found it difficult to identify

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[127] Steven Kosiak, Andrew Krepinevich, and Michael Vickers, "A Strategy for a Long Peace," in *Strategy and Force Planning*, 4th ed. (Newport, RI: Naval War College Press 2004), 556. This argument is reworked in Andrew Krepinevich, "The Pentagon's Wasting Assets." The concept is based on asset specificity and the inability to easily reallocate funds for an alternative use.

[128] Michael E. Porter, "Industry Structure and Competitive Strategy: Keys to Profitability," *Financial Analysts Journal* 36, no. 4 (July-August 1980): 30-41; Michael E. Porter, *Competitive Advantage: Creating and Sustaining Superior Performance* (New York, NY: The Free Press, 1985), 1-30.

new markets in which they could apply existing resources to establish a position that was both profitable and defensible.[129]

Resource based theory, which – to some degree – represents an alternative to the Michael Porter tradition within the field of strategic management,[130] focuses on the internal resources of the firm as the source of competitive advantage and centers on growth, diversification, and the scope of the firm.[131] This concept has been extended to the subject of public management in the

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[129] For a comparison on both views of strategy, captured in the concept of rent generation, see Spyros Lioukas and Yiannis E. Spanos, "An Examination into the Causal Logic of Rent Generation: Contrasting Porter's Competitive Strategy Framework and the Resource-Based Perspective," *Strategic Management Journal*, 22, no. 10 (Oct. 2001): 907-934. Spanos and Lioukas conclude that elements of both external and internal views were relevant. However, consensus in the literature on the nature of compatibility is not established.

[130] Resource-based theory framework fits into and is complementary to the mainstream business strategy, organizational economics, and industrial economics research and literatures. This study will focus on the strategy literature. See Joseph T. Mahoney and J. Rajendran Pandian, "The Resource-Based View within the Conversation of Strategic Management," *Strategic Management Journal* 13 (1992): 363-380. For a comprehensive description of the resource based theory's evolution out of organizational economics' inability and industrial organization's ability to explain firm decisions in the midst of market forces determined by industry structure, see Lioukas and Spanos.

[131] Mahoney and Pandian, 366-368. Also see Robert M. Grant, "The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation," *California Management Review* 33, no. 3 (Spring 1991): 114-135. Grant presents an a practical framework for viewing strategy, or rent generation, based on the resources of the firm as opposed to a focus on the external environment. Also see Brian S. Silverman, "Technological Resources and the Direction of Corporate Diversification: Toward an Integration of the Resource-Based View and Transaction Cost Economics," *Management Science* 45, no. 8 (Aug., 1999): 1109-1124. Silverman focuses on the impact of transaction cost economics, firm-specific resources, and industries with high research and development intensities, all attributes of the defense sector. Also see Michael L. Pettus, "The Resource-Based View as a Developmental Growth Process: Evidence from the Deregulated Trucking Industry," *The Academy of Management Journal* 44, no. 4 (Aug., 2001): 878-896. Pettus traces the growth of trucking firms in response to the changed external environment in the trucking industry caused by deregulation from the perspective of firm resources.

context of public health care[132] and the subject of leadership and intangible human assets for the 18th- and19th-century Royal Navy.[133]

Birger Wernferlt discussed resource based theory from the perspective of the private sector in 1984, when he postulated that a firm's competitive strategy within an industry can sometimes best be built based on an understanding of its resources.[134] Margaret A. Peteraf subsequently expanded this work by describing four conditions that form the foundation of a resource-based theoretical model of competitive advantage, known as resource based theory.[135] In effect, resource based theory provided an instrument for looking first at a firm and the assets under its control as a source of enduring competitive advantage (instead of using a firm's external environment as a starting place for developing strategy). In so doing, it provided the firm with the opportunity to look inward to leverage its core competencies in the pursuit of competitive advantage.

C.K. Prahalad and Gary Hamel revealed the managerial implications of resource based theory by linking the firm's core competencies with core products in order to develop multiple, presumably highly competitive, end products.[136] As

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[132] See Fran Ackerman, John M. Bryon, and Colin Eden, "Putting the Resource-Based View of Strategy and Distinctive Competencies to Work in Public Organizations," *Public Administration Review* 67, no. 4 (Jul/Aug 2007): 702-717.
[133] Charles D. Pringle and Mark J. Kroll, "Why Trafalgar Was Won Before It Was Fought: Lessons from Resource-Based Theory," *Academy of Management Executive* 11, no. 4 (Nov., 1997): 73-89.
[134] Birger Wernerfelt, "A Resource-Based View of the Firm," *Strategic Management Journal* 5, no. 2 (Apr.-Jun., 1984): 173.
[135] A note on terminology: in the literature the terms "resource based theory" and "Resource Based theory" are used interchangeably. In this study only "resource based theory" is used. In addition, the term is hyphenated in the literature and in this study only as it relates to "resource-based perspective."
[136] One example of this in the military capabilities space is the idea of a multi-function asset like the F/A-18 Hornet. The designation fighter/attack represents the two functions

they argued, “in the long run, competitiveness derives from an ability to build, at lower cost and more speedily than competitors, the core competencies that spawn unanticipated products.[137] According to this logic, collective learning within the organization[138] serves as the basis for self-renewing core competencies that focus the organization’s energies on developing a leadership position in designing and producing a particular class of product functionality.[139] The firm’s strategy then becomes to maximize their world manufacturing share of core products, who’s “resources may provide both the basis and the direction for the growth of the firm itself.”[140]

Resource based theory fits within three literatures: *mainstream strategy, organizational economics,* and *industrial organization.*[141] This study focuses on the strategic management portion of the literature, in which resource based theory provides an interesting opportunity for evaluating the strategy employed by actors participating in the weapons procurement process. In this approach, business strategy is a search for rents that are greater than the opportunity cost of the owner of the resource.[142]

For this study, resources are divided between tangible and intangible resources. While those developments in the intangible asset category are beyond the scope of this study, they are considered within the context of operational and

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it serves and the two platforms it replaced, the F-14 Tomcat fighter and the A-6 Intruder attack air platforms.

[137] C. K. Prahalad and Gary Hamel, “The Core Competence of the Corporation,” *Harvard Business Review* (May-June, 1990): 81.

[138] Ibid., 82.

[139] Ibid., 85.

[140] Ibid., 85; Peteraf, 182.

[141] Mahoney and Pandian, 363.

[142] Ibid., 364.

military leadership for the employment of military forces as part of the theory of war and what is known as "operational art."[143] This study focuses on material resources because they are required to create military capabilities.

Of the three types of rents cited by Mahoney and Pandian, Ricardian firm-specific rents are the most relevant because of the unique nature of the weapons procurement process and defense structure.[144] Strategic factor markets, introduced by Barney in 1986, help to develop the principal attributes of resource based theory.[145] Barney claimed that the strategic choice of a firm should be based on the unique skills and capabilities of the firm rather than the environment. However, Dierickx and Cool contradicted Barney, arguing that strategic factor markets were incomplete while sustained competitive advantage depended upon the ease of substitution or imitation of an asset.[146] Finally, in 1991, Barney argued that the four empirical indicators of potential sustained competitive advantage

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[143] Several classic theorists on the theory of war, such as Clausewitz and Sun Tzu, discuss intangible assets of leadership and the role of the commander in war. For an excellent survey on the theories of war, see Michael I. Handel, *Masters of War: Classical Strategic Thought*, 3rd, revised, and expanded ed. (London: Frank Cass Publishers, 2001). Operational Art refers to the translation and parceling of strategic objectives in a theater into military objectives reached through a series of major operations into a campaign. The role of the commander is to develop the operational idea that envisions how forces are to be arranged and employed in time and space to achieve the objective. The commander's intangible leadership quality allows him to control the nexus of the nature of the strategic political objective and the employment of forces and is expressed in his commander's assessment he presents to the political leadership and his commander's intent that he promulgates to his forces. The authoritative survey of this literature is found in Milan Vego, *Joint Operational Warfare: Theory and Practice* (Newport, RI: Naval War College Press, 2007), Chapters 1, 9, and 10.

[144] Ibid., 364. Ricardian, monopoly, and entrepreneurial rents are the three cited. Quasi rents are also cited for idiosyncratic physical capital, human capital, and dedicated assets, all prevalent in the defense industry.

[145] Jay B. Barney, "Strategic Factor Markets: Expectations, Luck, and Business Strategy," *Management Science* 32, no. 10 (October 1986): 1231.

[146] Karel Cool and Ingemar Dierickx, "Asset Stock Accumulation and Sustainability of Competitive Advantage," *Management Science* 35, no. 12 (December 1989): 1504.

were value, rareness, non-imitable, and non-substitutable.[147] These four indicators serve as the foundational analytical attributes of the theory.

Pringle and Kroll employed Barney's four attributes of resource based theory to the Battle of Trafalgar in what remains the only application of resource based theory to a military subject in the literature. The analysis focused on how on October 21, 1805, in the waters off Cadiz, Spain, Admiral Nelson used a numerically and qualitatively inferior force to win the decisive naval battle, which allowed the Royal Navy to control the seas for the next century. The paper concludes that the intangible resource of the British seafaring nation and the Royal Navy determined the outcome, which are ideas relating to weapons technologies and operations that resonate today.[148] Moreover, the observations about Nelson's leadership qualities fit squarely inside established ideas of military leadership.[149]

Bryson, Ackerman, and Eden conduct the only application of resource based theory in public sector management. They begin with the concept that public sector organizations are externally justified, and argue that organizations must successfully communicate their value to external stakeholders in order to receive appropriated funds. Their argument stipulates the creation of distinctive competencies that encompasses the attributes of resource based theory and a "livelihood scheme," which is the public sector equivalent of a business plan. This

[147] Jay Barney, "Firm Resource Sustained Competitive Advantage," *Journal of Management* 17, no. 1 (1991): 99-120.
[148] Mark J. Kroll and Charles D. Pringle, "Why Trafalgar Was Won Before It Was Fought: Lessons from Resource-Based Theory," *Academy of Management Executive* 11, no. 4 (Nov., 1997): 73.
[149] See footnote 139.

study will consider a military operating concept as the functional equivalent of the livelihood scheme, in which an operating concept is a statement describing the purpose of the organization: the method by which it will perform its function and the tools it will employ.[150] The distinctive competencies are those rare, valuable, non-imitable, and non-substitutable competencies necessary to achieve the organization's operating concept.[151] Most importantly for this study is the proposition that "successful collaboration involving public organizations must be underpinned by linked competencies across organizations."[152] The attribute of linked competency is the essential element of resource based theory that links USSOCOM's efforts to develop SOF-peculiar military capabilities as part of the U.S. Joint Force. Identifying the distinct and linked competencies becomes a crucial task for USSOCOM and its service components, in this case Naval Special Warfare.[153]

Conclusion

For this study, the organizational process and bureaucratic politics analytic paradigm is reflected in the process tracing methodology, which will test the applicability of resource based theory through the action channels of the JSPS, and with the decision aids of JCIDS and SOFCIDS described above. These three

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[150] Huntington, *The Soldier and the State*, 1. The importance of the operational concept originally identified by Huntington has been reinforced today. Cropsey argues that the navy has lost its way and understanding of its fundamental role and mission in the context of the role of the U.S. Navy in the post-Cold War era. See Cropsey.
[151] Ackerman et al., 702.
[152] Ibid, 714.
[153] Matthew S. Kraatz and Edward J. Zajac, "How Organizational Resources Affect Strategic Change and Performance in Turbulent Environments: Theory and Evidence," *Organization Science* 12, no. 5 (Sep-Oct 2001): 632-657.

action channels will reveal whether USSOCOM is most influential leveraging its unique authorities to procure SOF-peculiar capabilities with decision games, policy games, or action games. It is through these three games in the action channels that the relationships between USSOCOM and the other members of the defense establishment will be traced, specifically the U.S. Navy and the other service components of USSOCOM, as well as the exogenous actors of Congress and industry.

This dissertation employs qualitative research. It will use both process tracing and structured comparison methodologies.[154] The process tracing methodology will be used to answer questions and themes related to the bodies of literature and within the historical and organizational context of USSOCOM reviewed in this chapter. The initial three questions center on the idea for the operational requirement. Who originated the operational requirement, and why? When did it originate? And how did it originate? Then the influences within, or endogenous to, the Department of Defense will be examined through the next set of questions. What was the role of actors within the Department of Defense? How did they influence the USSOCOM decision process? How did USSOCOM use its unique authorities? What was USSOCOM's influence on the Department of Defense's process? Next, the influences from outside of, or exogenous to, the Department of Defense will be examined. What was the role of Congress and industry? How did they influence the USSOCOM decision process? Finally, the

[154] Steven Van Evera, *Guide to Methods for Students of Political Science* (Ithaca, NY: Cornell University Press, 1997). Also Alexander George, "Case Studies and Theory Development," in *Diplomacy: New Approaches in History, Theory and Policy,* ed. Paul Gordon Lauren (New York: The Free Press, 1979).

two general themes of innovation versus adaptation design trade-offs are examined.

The three platforms employed in this study broadly characterize undersea capabilities for the maritime environment and address technology and capabilities that pertain to the general purpose naval forces, specifically the submarine force and maritime Special Operations Forces, specifically Naval Special Warfare, the U.S. Navy SEAL Teams. The process tracing methodology should reveal that resource based theory can serve as a foundation for a strategy of cooperation, as opposed to a strategy founded on rational choice that leads to competition.

Chapter Three: Dry Combatant Submersibles

Introduction

This chapter examines dry combatant submersibles as a means to test resource based theory's ability to answer two fundamental research questions. First, how has the United States Special Operations Command leveraged its unique authority to influence the Department of Defense to develop and procure Special Operation's peculiar equipment? Second, how, when and why do the US Congress and industry intervene in the United States Special Operations Command procurement process?

Chapter Two, the theory chapter, reviewed the literature for these two research questions. This literature provides the context and basic set of assumptions that isolate the dependent variable, the ability of the United States Special Operations Command to influence the Department of Defense to procure Special Operation's peculiar equipment, thus providing the opportunity to test resource based theory's ability to explain USSOCOM's actions. The chapter also introduced resource based theory and presented hypotheses for the fundamental research questions of the study.

This chapter begins with a summary of the structure of the procurement process. A brief overview of dry combatant submersibles including their historical purpose and origins within the military force structure is presented, followed by a discussion of their introduction into the US force structure prior to the creation of USSOCOM. These two sections help to establish a pre-USSOCOM point of comparison for later in the case study. The chapter goes on to discuss the three specific platforms used in this case study. Their purpose, general technical specifications and capability are presented and the history of the platform itself in relation to the structure of the procurement process is illustrated and general phases are identified. Finally, the chapter concludes with a brief recap and prelude to the analysis chapter.

The Structure and Process

As established, the United States Special Operations Command, or USSOCOM, was created in 1987 through the enactment of the Nunn-Cohen Amendment to the 1986 Goldwater-Nichols Defense Re-Organization Act. [1] This amendment pulled Special Operations Forces, or SOF, out of the organizational structure of the military services. It also created USSOCOM, as a Specified Unified Command, to provide organizational structure and bureaucratic position with a commander of four star rank that would ensure advocacy and resourcing for Special Operations within the defense establishment as identified in the seminal Holloway Report.[2]

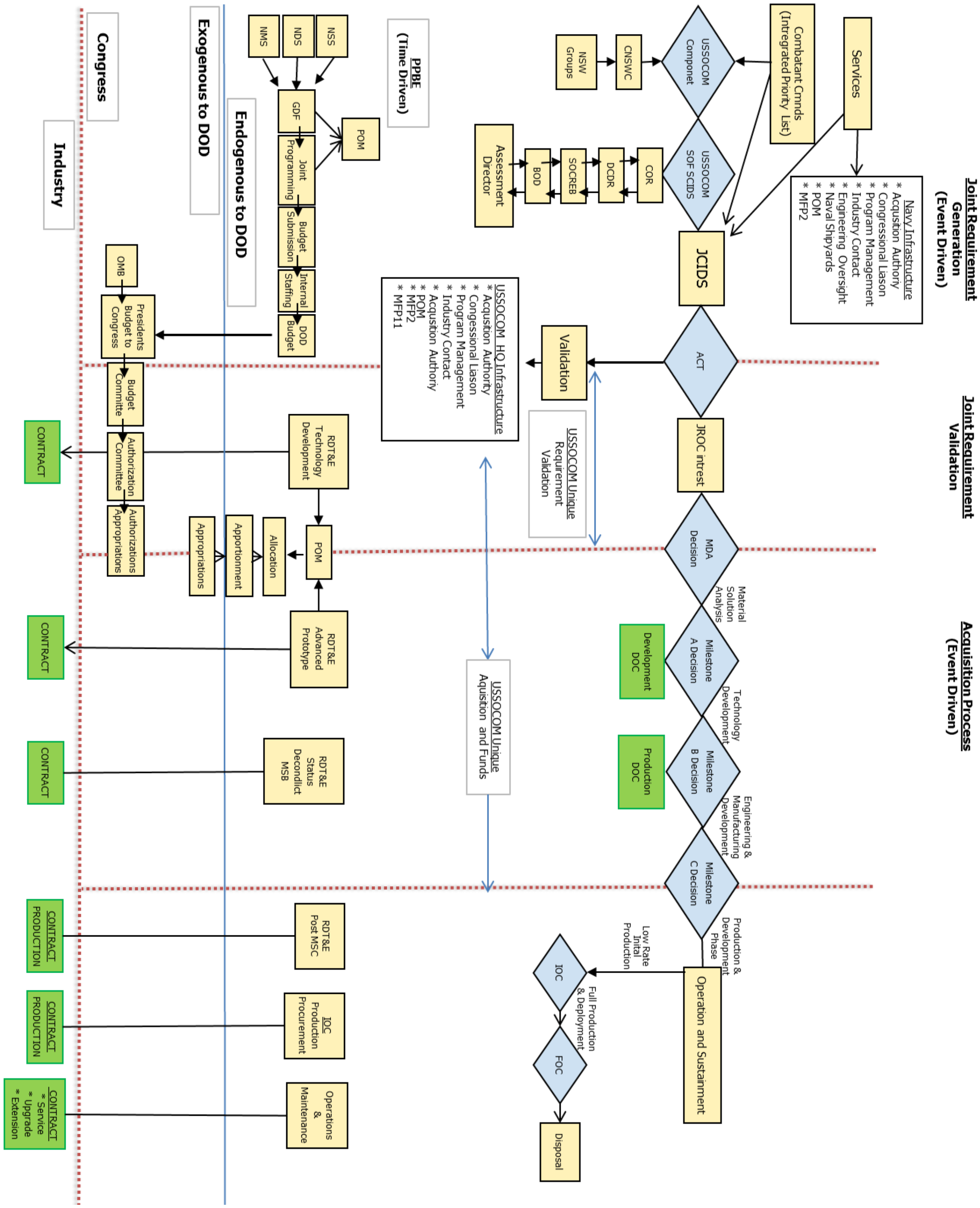
Chapter two also reviewed the elements of the defense establishment with a focus on its maritime components. The principal components of this historical "Iron Triangle" include the military service - in this case the Navy - Congress, and industry woven together under the unique market condition of monopsony.

[1] The Nunn-Cohen Amendment institutionalized Special Operations and established USSOCOM as an element of the defense establishment.

[2] J.L. Holloway, III, *Special Operations Review Group, Iran Rescue Mission Report, August 1980 ("The Holloway Report")*, (Washington, DC: The Joint Chiefs, 1980).

Nine relationships within the components and sub-components of the “Iron Triangle” were identified and serve as the framework for understanding the organizations and individual actors involved in the highly complex defense procurement process as well as their interests. This process includes the requirements generation process starting with the service components of USSOCOM follows through the validation and prioritization of those requirements across the Special Operations force structure within USSOCOM and continues through USSOCOM’s advocacy of those requirements for validation and prioritization with the Joint Force that enable the requirement to move into the acquisition and planning, budgeting and execution processes. These processes are the practical reflection of the theoretical action channels of the organizational structure and bureaucratic politics paradigm, covered in depth in chapter two and illustrated below in figure 1, that serve as the basis for understanding government decision making and resource allocation and provides the structure in which the individual actors participate to effect a decision. Also identified are the legislated authorities, resources and structure of USSOCOM that provide it with the ability to act differently as compared to either a military service or a unified combatant commander. This understanding of the structure of the defense establishment along with the process and system in which individual organizations within the structure differentiate themselves from other organizations to compete for finite resources in the requirements, acquisition and budgeting process serves as a reference point against which to compare Resource Based Theory.

Figure 1: Author's recreation of The JCIDS Process's visual representation. For the official version, see Defense Acquisition University, "Integrated Defense Acquisition, Technology, and Logistics Life Cycle Management System," Version 5.3.4, June 15, 2009.



The Dry Combatant Submersible: Relevant Historical Context

The Royal Navy introduced dry combatant submersibles into the military force structure during the Second World War with the creation of the X-Craft.[3] At the time, the British navy faced two difficult problems: the German occupation of Norway coupled with Germany's adoption of a fleet-in-being strategy that employed a powerful surface action group formed around the battleship *Tripitz*. The purpose of the surface action group was to threaten the convoys of allied material flowing from the Atlantic into the Soviet ports: material necessary to keep the Soviets in the war on the Eastern Front. As a result, the United Kingdom committed additional elements of the Royal Navy's Grand Fleet to home waters and convoy protection duty.

However, the Royal Navy immediately faced insurmountable challenges to conventional operational planning. The *Tripitz* was positioned in the Norway's Asensjord Fjords north of the Arctic Circle, and the topography of the fjords rendered air bombardment ineffective. Moreover, the confined terrain precluded traditional naval engagement from either conventional surface or subsurface platforms. Additionally, larger land force formations were unavailable because the Allies were building forces in England to support the invasion of Europe. The Royal Navy needed an alternative solution; the question was what to do?

The Royal Navy, at the urging of the Prime Minister Winston Churchill, took its cue from the Italian combat divers of the *Decima Mas* who employed human torpedoes, launched at sea from submerged or surface platforms. The

[3] Paul Kemp, *Underwater Warriors* (Annapolis, MD: Naval Institute Press, 1996), 115.

human torpedoes were launched from relatively short distances and could navigate around fixed defenses while submerged to deliver ordnance to the keels of ships, both men of war and merchantman, to either sink or damage them while at anchor.

Although this was a useful reference point there were a number of operational challenges that the British navy still had to overcome. The Italian Special Operations were conducted in the relatively warm waters of the Mediterranean by operators using self-contained breathing apparatus of compressed oxygen and exposed to the underwater environment. The Arctic environment, the nature of the objective, the ranges involved and the temperature of the sea all required that the British platform have greater capacity and that the British Special Operations operator be protected from his environment. Additionally, the amount of payload required to carry out the British missions successfully was substantially larger. These unique requirements resulted in the creation of the X-Craft, the first dry combatant submersible, shown in Figure 2.

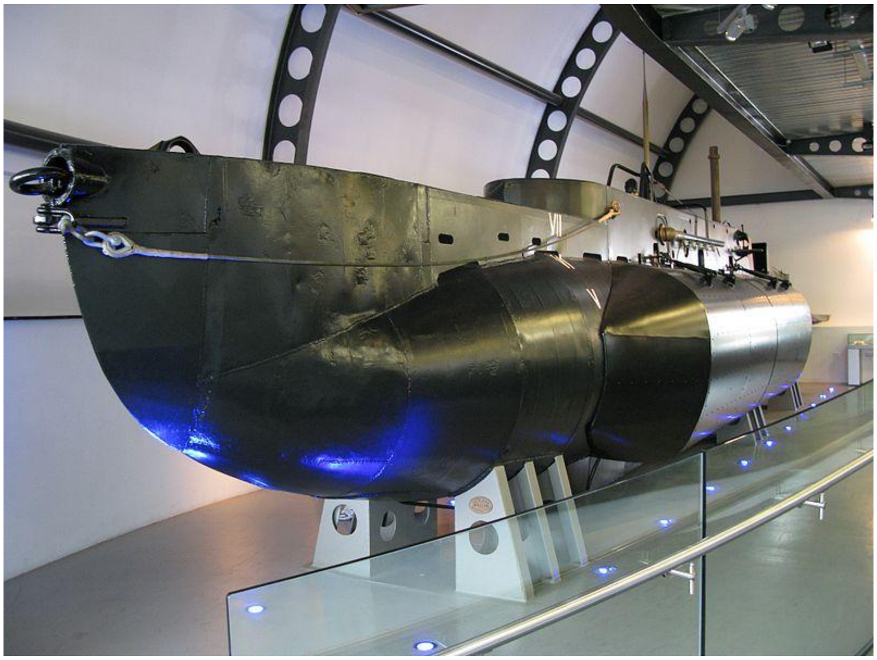


Figure 2: The last remaining X Craft, on display at the Royal Navy Submarine Museum. http://en.wikipedia.org/wiki/X_class_submarine

The full story of the development of the X-Craft and its successful exploits in both the Atlantic and Pacific theaters of war are beyond the scope of this study.[4] However, it is relevant to point out several points that are germane to this study. First, the development and employment of combatant submersibles was not a principal service effort. The Naval Services were absorbed with platforms that fell within a fleet operating concept that could be combined with other naval

[4] As are the stories of other types of wet and dry combatant submersibles developed and deployed by multiple belligerents with varying degrees of success throughout the Second World War other than to say that the requirements are fundamentally interconnected. X-Craft and follow-on XE craft operations occurred in European and Pacific waters. In the Atlantic, the X-Craft was deployed in support of multiple direct action missions in Norway and pre-Normandy invasion beach reconnaissance operations. In the Pacific theater, the XE-Craft included a direct action combat swimmer mission against Japanese man of war in Singapore at anchor positioned, like the *Tripitz*, to use the natural geography to obstruct conventional attack as well as undersea cable cutting operations requiring men working in the water column at sea outside the hull of a host submarine. See Paul Kemp, *Underwater Warriors*.

assets to create major fleet formations and solve fleet problems focused on sea control and power projection. Second, the requirement for a dry combatant submersible is historically traced to the capabilities and limitations of the wet combatant submersible, which in turn are determined by human performance and the operator's ability to withstand exposure to extreme environmental conditions for extended periods of time, as well as the impact of geography on range and depth operating parameters required to access an objective area in the littorals. These drive the inclusion of a pressure hull, like a mini-submarine and increased propulsion and payload capacity. Third, a dry combatant submersible is differentiated from a submarine in that it must include a diver lock-in and lock-out capability. The intended function is to provide for the tactical maneuver of a special operations operator to clandestinely access an objective in a water column or access across the high water line on land. Fourth, a dry combatant submersible does not have the autonomy and ability to conduct independent operations like a submarine.

In the United States, wet and dry combatant submersibles, also called Swimmer Delivery Vehicles (SDVs) and for a short time Swimmer Propulsion Units (SPUs), did not take hold until after the Second World War. From 1952 to 1967, thirty types of SDVs were proposed or built. The general requirement for SDVs was articulated in a now declassified report prepared by the Office of Naval Research dated November 1952 and entitled "Underwater Swimmers." It read:

> Whenever it is necessary to operate near an enemy held shore in as complete secrecy as possible, the approach to the

> objective must be made under water. The first part of the approach can be made in a fleet-type submarine, but these 1500-ton vessels cannot operate submerged in water shallower than 60 ft. and Depths less than 150ft are considered hazardous. The final submerged approach must be made by swimming or in a small submersible. On many coasts throughout the world, depths less than 60 ft. extend out several miles from shore. In these areas even equipped with SCUBA there would not have enough breathing gas to swim the distance and return. Moreover, they would be seriously fatigued when they reached their objective after their swim of several hours. To supplement their swimming, they must have a small, powered submersible…[5]

Although written decades ago for platforms smaller in scale and complexity, this summary describes the general requirement for the three platforms described in this chapter and serve as the subject of this study.[6] From an operations perspective, this general requirement can be broken down into three basic mission sets.

The first mission set involves clandestine reconnaissance and hydrographic and near shore survey in high threat areas and hostile shores. For

[5] Naval Operations Support Group Pacific, Research, Development, Test, and Evaluation Department, *A Review of Combat Swimmer Delivery Vehicle Development (U) 1939-1967,* edited by Lawrence G. Body, Operational Report (Naval Operations Support Group Pacific, 1967), 5-1.
[6] ORD and JCIDS documents for the three platforms involved in this study are classified and have been examined by the author. This declassified document serves as the basis of the requirement for this study.

example, prior to an amphibious landing, the naval commander would need to determine both where he could land the force and whether the lanes approaching the beach and the beach itself would be obstructed or could support the weight of the landing force. The surveys that would be conducted seaward of the high water line, the line at which the high tide ends and the land begins, are called hydrographic surveys. Additionally, the commander would need to know whether and where exit routes from the beach landing site existed. The landing force moves through these exists near the shore to establish a position where the forces assemble and stage material needed for their movement from the beach through the enemy forces toward the objective. This was the classic role and mission of the US Navy's Scouts and Raiders, Naval Combat Demolition Units, and Underwater Demolition Teams, the legacy organizations of the US Navy SEAL Teams, during World War II and the Korean War. The use of the X-Craft and US Navy Scouts and Raiders and Navy Combat Demolition Units in this role is seen in Operation Neptune, the amphibious portion of Operation Overlord, during the invasion at Normandy, France in June of 1944.[7]

The second basic mission set involves the clandestine transport of multiple swimmers and special operations operators from a host submarine at sea to an objective area for an operation either in a water column sea ward of the high water line or across the beach. This is similar in concept to the preceding example but is different in purpose and has a non-amphibious objective. For example, a later version of the X-Craft was employed in the Pacific to lock operators out of

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[7] For a more detailed description of the concept, see John B. Dwyer, *Scouts and Raiders: The Navy's First Special Warfare Commandos* (Westport, CT: Praeger, 1993), chapters 7 and 8.

the X-Craft to cut the Hong Kong – Singapore undersea cable "where the cable entered the sea from Hong Kong Island [at the point where the] bottom shelved very steeply and there was only a strip about 100 yards wide where the diver could work: any shallower and he could be seen from the surface; any deeper and he would succumb to oxygen poisoning."[8] This operation required extensive equipment, the capability to lock in and lock out operators, and an ability to loiter in a target location for an extended period of time in a water depth that standard fleet submarines simply could not do. Operations involving crossing the high water line can be found in the Korean War when Scouts and Raiders landed from sea behind enemy lines to conduct sabotage of rail lines, tunnels and bridges to impede enemy logistics efforts, forcing them to re-assign troops from front line duty to rear guard duty.

The third mission is similar to the second, but requires a substantial increase in payload to accommodate more swimmers or cover longer distances in shallow water. "In some missions the long transit from the launch point to the objective area precludes the use of a wet vehicle." [9] Examples of this are seen in the employment of later versions of the X-Craft in the Pacific Theater with the assault on the Imperial Japanese Cruisers *Takao* and *Myoko* while lying at anchor in the Jahore Strait in the vicinity of Singapore in 1945. The geography required a long infiltration from the submarine because of shallow water, water so shallow that the X-Craft found itself stuck between its target and the bottom after its

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[8] For a complete description, see Paul Kemp, *Underwater Warriors*, chapter 14.
[9] Ibid., Chapter 4.

charges were set. The sheer distance required a platform with greater range, and the size of the target required substantial demolition.[10]

Prior to the creation of USSOCOM, thirty SDVs were proposed. Two proposals were for dry SDVs, of which one, the USS X-1 was built. The USS X-1 was conceived in 1953 by the Underwater Demolition Teams, the organizational unit that preceded the SEAL Teams, and at the time was organized under the Navy's amphibious forces. It was contracted in 1954 by the Office of Naval Research for development as a swimmer delivery vehicle to support amphibious operations and was delivered in 1957 and is pictured below in figure 3. However, it was transferred to the submarine forces by the US Navy's Bureau of Ships during its production phase and as a result its employment as a dry swimmer delivery vehicle by the Underwater Demolition Teams in support of amphibious operations ended before the platform was built. Although the lock-in and lock-out chamber remained, other requirements for Underwater Demolition Team operations were deleted from the design and never built, greatly reducing its capability as a SDV.

The USS X-1 was rarely used as originally intended. Its mission and operational tasking fell under the submarine force operations, at the time one of the three combatant lines of the Navy, who simply tasked it to fulfill conventional submarine requirements for the US Navy. It was put into storage in 1957 after a fire occurred in its secondary propulsion system, which was designed to support clandestine UDT operations. In 1960, the USS X-1's secondary propulsion system

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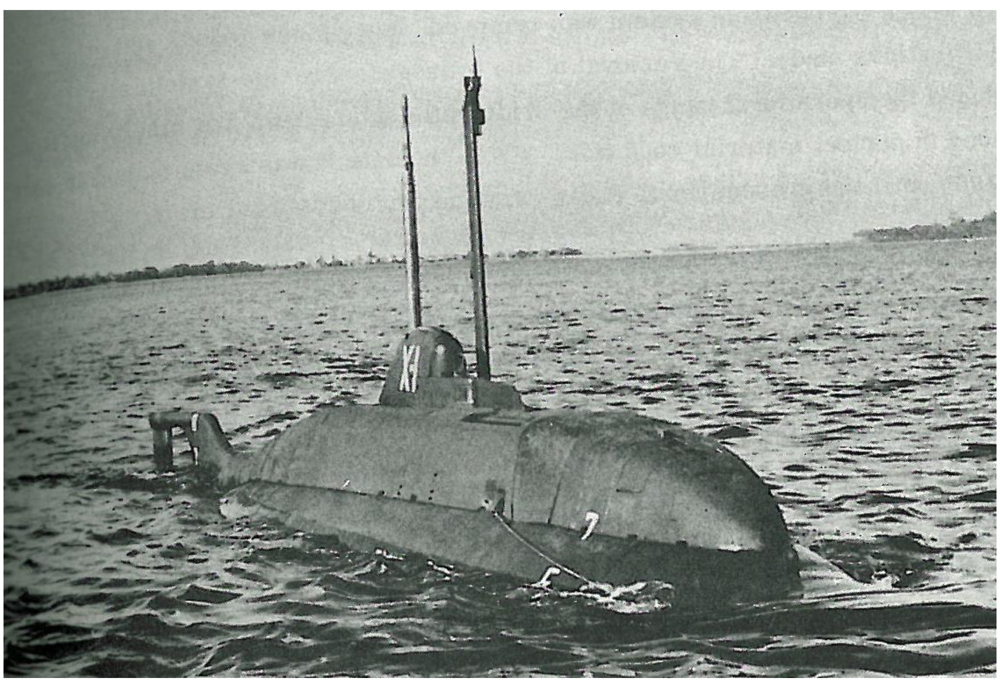
[10] For a complete description, see Kemp, *Underwater Warriors*, chapter 14.

was removed from the craft and it was brought back into service to support research operations for the US Navy for the remainder of its career.

In a final ode to this ill-fated SDV, the Republic Aviation Corporation provided an unsolicited proposal to the US Navy in 1963 for an improved design of the USS X-1 to support an unfilled maritime Special Operations Forces requirement for a dry SDV. The proposal included modifications that increased the payload to support ten combat swimmers and battery powered propulsion. Although the design was approved by the Bureau of Ships, the Underwater Demolition Teams did not have the organizational position or influence to advocate for the program and it remained unfunded by the Navy and never built.[11] An artist's conception is pictured in Figure 4 below.



[11] Ibid., Chapter 5.

Figure 3: USS X-1. *A Review of Combat Swimmer Delivery Vehicle Development (u) 1939-1967*, Naval Operations Support Group Pacific, 7-89.

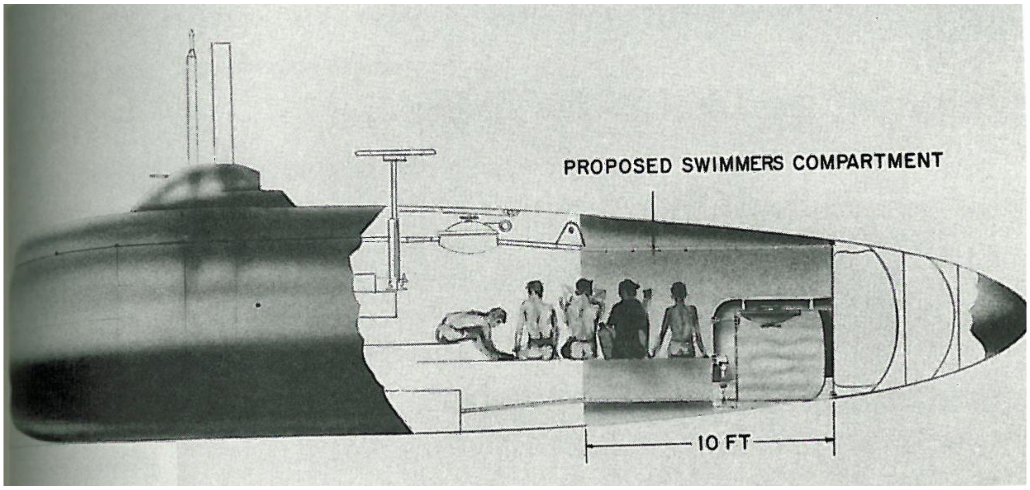


Figure 4: Republic Aviation Corporation USS X-1 Modification. *A Review of Combat Swimmer Delivery Vehicle Development (u) 1939-1967*, Naval Operations Support Group Pacific, 7-165.

The story of the USS X-1 provides two important data points for this study. First, when the US Navy prioritized capabilities that directly supported sea control and power projection, the development of a *dry* SDV that served a function as undersea clandestine mobility platform peculiar to maritime Special Operations Forces did not fit these priorities and as a result it was sidelined. Moreover, naval support for the development and production of *wet* SDV's was equally sporadic and limited. Second, since maritime Special Operations Forces fell underneath Naval Operations Support Groups, subcomponents of the amphibious forces of both Atlantic and Pacific Fleets, they possessed little means to influence procurement decisions, especially when their chosen technologies only at best enabled fleet amphibious operations. Instead, decisions, favoring capabilities that supported sea control and power projects rather than clandestine operations, were taken several echelons above their organizational position. Lacking a direct link to sea control or power projects and without the bureaucratic power to champion the SDV's, they were quickly sidelined and the capability was lost. The need for these specialized capabilities did not go away, however, nor did the maritime Special Operation Forces community. The question was how and who could get the SDV's built?

Although this case is about dry combatant submersibles, several data points surrounding the historical development of wet SDVs are germane to this study. First, as mentioned above, dry combatant submersible capability is linked to wet combatant submersible capability. In the development of the wet SDV, the General Dymanics/Convair Model 14 in 1966 was the first operational prototype delivered to the Navy that possessed combat potential.[12] This design served as the basis for the Mark XII Mod 1 that is employed today. Its performance parameters provide the reference point that dry combatant submersibles must surpass.

Second, the US shipbuilding industry, which tends to focus on large naval platforms, did not possess a capacity to develop either wet or dry SDVs. The US Navy purchased two-man and four-man wet SDV's from the famed Italian firm Construzione Motoscafi Sottomarini or COS. MO. S., of Livorno Italy in 1960 and 1962 to fulfill its SDV requirement. COS. MO. S. had produced the *Maile* or Pigs of the *Decima Mas* during World War II and produced multiple versions for *Il Gruppo Operativo Inquisori*, the post war unit of Italian Naval Commandos.[13]

[12] Ibid.
[13] Ibid.

This precedent of searching for foreign expertise to construct a combatant submersible is relevant with respect to USSOCOM's eventual undersea strategy, which will be discussed later in this chapter.

Third, the Underwater Demolition Team ONE Swimmer Propulsion Unit X-1, developed in 1960 by UDT operators from spare aircraft parts found at the North Island Salvage for the purpose of increasing their underwater range capability, further illustrates the prioritization of undersea maritime Special Operations-peculiar requirements that had not been prioritized by the US Navy.[14]

USSOCOM and Dry Combatant Submersibles

As discussed above, the requirement for a dry combatant submersible, originally called a dry SDV, first made its appearance in the 1960s and in the context of naval amphibious operations. After the creation of USSOCOM, the naval special operations community returned to this issue with a new program: the Dry Combatant Submersible (DCS) platform, which is the technology examined in this study.

The DCS was selected for this case study for five principal reasons. First, the sequence of three platforms involved in the case, the *Advance SEAL Delivery System* (ASDS,) the *Joint Multi-Mission System* (JMMS,) and the *Dry Combatant Submersible prototype S301*, when studied in combination, illustrate the full range of unique authorities of USSOCOM as well as how USSOCOM leveraged those authorities over time to influence the DoD. Second, DCS is a major program with

[14] Ibid.

JROC interest and as such illustrates how effective USSOCOM interacted with and influenced the defense establishment, the Joint Force and DoD to procure Special Operations-peculiar equipment, the fundamental research question.

Third, unlike the pre-USSOCOM dry SDV requirement intended to support naval amphibious operations, the DCS requirement fulfills Special Operations requirements for accessing high risk areas in a maritime domain for a broader set of purposes; it fulfills the objectives of stakeholders beyond the amphibious forces and can be used for mission sets well beyond amphibious operations. Fourth, the story of the DCS reflects aspects of military innovation. Finally, this case provides an opportunity to test and extend resource based theory into public management and the defense establishment along the theory's fundamental attributes.

Although the actual operational details of how the DCS could be used are classified, there is much unclassified discussion about their general purpose, which is used for this case study. The purpose of the capability is the same for each of the three platforms; very much like the WWII example given at the start of this case study, they are designed "for clandestine delivery and extraction of Navy SEALs and equipment in high-threat environments."[15] The focus on a dry rather than wet capability is justified because "(un)like existing wet SEAL

[15] General Accounting Office, *Report to the Committee on Armed Services, U.S. Senate: Defense Acquisitions: Advanced Seal Delivery System Program Needs Increased Oversight* (Washington, DC: United States General Accounting Office, 2003); Government Accountability Office, *Report to the Subcommittee on Emerging Threats and Capabilities, Committee on Armed Services, U.S. Senate: Defense Acquisitions: Success of Advanced Seal Delivery System Hinges on Establishing a Sound Contracting Strategy and Performance Criteria* (Washington, DC: United States Government Accountability Office, 2007).

Delivery Vehicles, it transports Navy SEALs longer ranges in a dry environment, enhancing the operator's ability to perform."[16] This ability to go further and protect SEALs for longer is enhanced by what the unclassified brief calls "robust communications and loiter capability."[17]

This case study traces the development of three different platforms, each with a separate program of record, each part of the effort to develop and deploy a working DCS capability. Each platform had its successes and failures that led to the next platform. Each platform also provides insight into the development and procurement process at different points in time since the creation of USSOCOM. While every detail of this story is interesting, the story will follow its major inflection points that help to answer the fundamental research questions within each platform's history as well as the movement of one platform to another in an effort to develop and procure the SOF-peculiar capability. Five episodes mark the major inflection points in the story that spans all three platforms.

This section of the chapter will trace in detail the development of the case and its episodes described above to enable analysis later in this chapter and in

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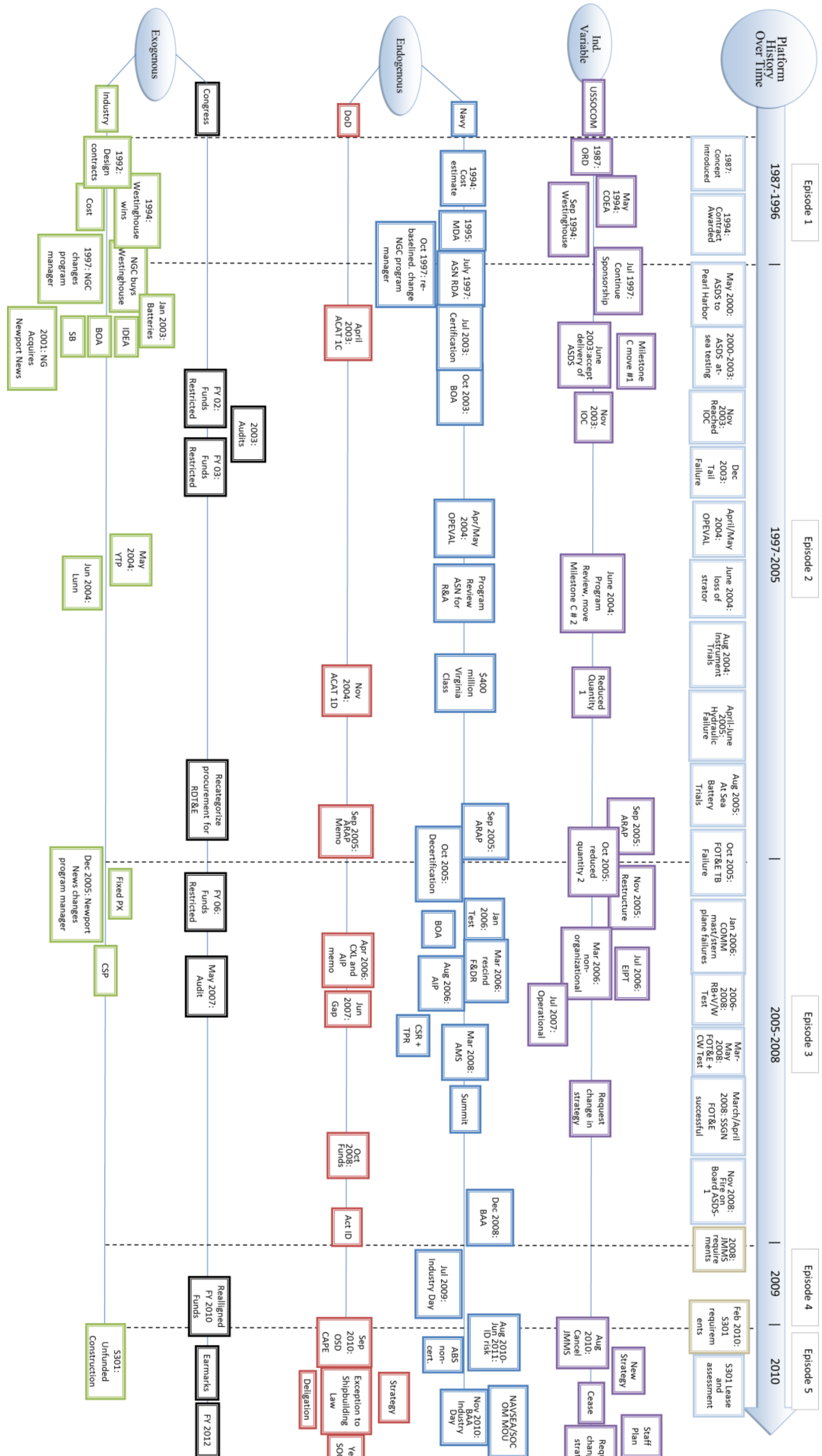
[16] U.S. Congress, House, *Bob Stump National Defense Authorization Act for Fiscal Year 2003*, H.R. 4546. 107th Cong., 2nd Sess. (December 2, 2002), Section 212.

[17] NAVSEA, "Program History: Advanced Seal Delivery System (ASDS)," (Naval Sea Systems Command, 2008). These requirements are specified in great detail in the classified Operational Requirement Documents for all three platforms that the author has accessed. However, due to classification, this study will be conducted considering the purpose of the unclassified language of the declassified Naval Operations Support Group Pacific study from 1939-1967, GAO, *Report to the Committee on Armed Services, U.S. Senate: Defense Acquisitions: Advanced Seal Delivery System Program Needs Increased Oversight*, (Washington, DC: United States General Accounting Office, 2003), GAO, *Report to the Subcommittee on Emerging Threats and Capabilities, Committee on Armed Services, U.S. Senate: Defense Acquisitions: Success of Advanced SEAL Delivery System hinges on Establishing a Sound Contracting Strategy and Performance Criteria*, (Washington, DC: United States Government Accountability Office, 2007), the National Defense Authorization Acts, and NAVSEA ASDS Program History brief.

succeeding chapters. The purpose of the capability is discussed and each platform is addressed in turn covering a description of the platform, a history of the platform itself, and then a sequential recounting of the actors involved, starting with USSOCOM and proceeding to actors endogenous and exogenous to DoD. Illustrations of the platforms as well as graphic representations depicting the history of the program, its inflection points and points of intervention by the actors involved will be presented throughout. The theoretical and process tracing analysis will occur after the case study is presented in detail.

Figure 5: Major inflection points of this case study.



The Advanced SEAL Delivery System or ASDS

This section discusses the ill-fated and technically challenging ASDS system, which USSOCOM championed between 1987 and 2009. The three phases of ASDS development, its technical failures and successes, operational failures and successes, cost over-runs, schedule delays, program changes and oversight reviews are discussed below and the extent to which the fate of this program and its outcome were shaped by USSOCOM, the Navy, the US Congress and private industry are discussed in following section.

The ASDS program history spans the years 1987 through 2009 and it alone encompasses three of the five episodes of this case study. The concept was introduced in 1987 with an Operational Requirements Document or ORD[18] by the newly established Naval Special Warfare Command (NSWC). With the Nunn-Cohen Amendment to the Goldwater Nichols Defense Re-organization Act, Naval Special Warfare took on two organizational positions. First, it became the naval service component under the Combatant Command of USSOCOM. Second, Naval Special Warfare moved up in the Navy Administrative Chain of Command to become an echelon two commander directly under the Chief of Naval Operations. This organizational change provided the first opportunity for the US Navy SEAL Teams to advocate for themselves with their own flag officer (as an echelon two commander) who held the equivalent positions as the other service

[18] The Operational Requirements Document or ORD is a classified document that the author has reviewed. Although the exact specifications articulated within the document remain classified, its purpose as represented in this study are accurate.

components to USSOCOM and the other three combatant lines of the Navy.[19] Naval Special Warfare no longer had to go through a command layer to get to the head of either the newly created Special Operations Forces Headquarters or the Chief of Naval Operations. They had direct access to the top.

Moreover, USSOCOM, as a Specified Unified Command with a four star officer, provided the rank and authority to interact directly with the Unified Geographic Combatant Commanders and determine the broad Special Operations requirements, those beyond naval operational concepts, as well as the CNO and Office of the Secretary of Defense to advocate for NSW programmatic support.[20] The Navy resisted this change, arguing:

> NSW forces were inextricably linked to fleet assets. They operate as an integral part of and in direct support of, battle groups and amphibious operations across the entire warfare spectrum. Army and Air Force Special Operations Forces are not similarly attached to their services'

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[19] The creation of CNSWC as an echelon two command with a commander of flag rank greatly enhanced the professionalization of the Naval Special Warfare Force. The other administrative event of such significance that provided the avenue for a SEAL flag officer was the creation of the SEAL Naval Officer Billet Code, or 1130 designator. The Navy Bureau of Personnel created this change in 1966 and 1967 under the influence of CAPT Bucklew. The Trident emblem of the SEAL Teams was adopted for both officers and enlisted in 1972. The SEAL Naval Enlisted Classification Code 5326 in 1966, although they maintained their naval occupational ratings. The Enlisted SEALs achieved their own enlisted rating in 2006. Tom Hawkins (SEAL), (ret.). Interview by Author. August 2, 2011.

[20] GEN James A. Lindsay, USA, first Commander in Chief of USSOCOM, “Memorandum for Assistant Secretary of Defense , International Security Affairs,” 08 Oct 1987. NSW archives. The memo to OSD illustrates how USSOCOM began exercising its new authority, the ability to advocate directly to OSD.

conventional commanders and are normally employed by Joint Commanders.[21]

The transition of Naval Special Warfare to the Combatant Command of USSOCOM did not proceed without Navy resistance. Although this particular vignette is about the transfer of command of NSW from the Navy and its restrictive perspective on the utility of NSW vis-a-vis USSOCOM and its much broader perspective on NSW utility, it illustrates how the creation of USSOCOM dramatically altered NSW's organizational and bureaucratic position within the structure of the defense establishment from which they could advocate for their requirements.

When imagining the scale of the ASDS, it helps to think of an undersea platform roughly the size of a standard shipping container that is then attached to the hull of a US Navy nuclear submarine. It is 65.2 feet in length, 6.75 feet abeam, 8.25 feet in height, and displaces 60 Long Tons. Its 1300 kilowatt/hour lithium-ion battery produced 62 shaft horsepower to propel the ASDS to unclassified range greater than 100 nautical miles and speed greater than 5 knots. ASDS could carry an unclassified payload of greater than five people to an unclassified depth of greater than 200 feet.

The ASDS contained three spheres: an operator compartment that controls all of the ASDS systems, a transport compartment that transports the SEAL operators and their equipment, and a lock-in lock-out or LIO compartment that

[21] Dorsey, James F. "Memorandum for the Director, Joint Staff," September 18, 1987, Department of the Navy, Office of the Chief of Naval Operations. Washington, DC.

provided the opportunity for the SEALs to access the sea to infiltrate to their objective and return to the platform to exfiltrate back to the host platform. The ASDS contained several overall subsystem categories that supported energy, propulsion, maneuver, navigation, life support, communication, sonar, vehicle integration, and host platform interface subsystems. Specific components with their supporting functions fit within these general subsystems. For example, the hydraulic system and its components fit within the overall maneuver category of subsystem.[22] Figures 6, 7 and 8 below illustrate the overall dimensions of the ASDS, its description, and its operating concept when in the objective area.

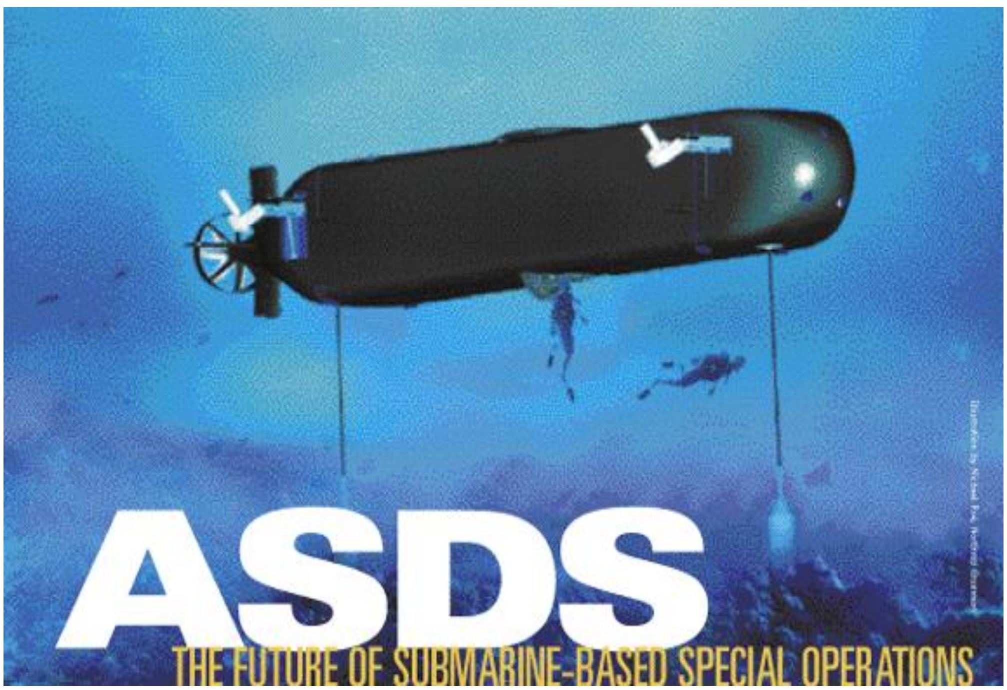

Figure 6: Artist's impression of the ASDS. NSW archives.

[22] NAVSEA ASDS Program History Brief

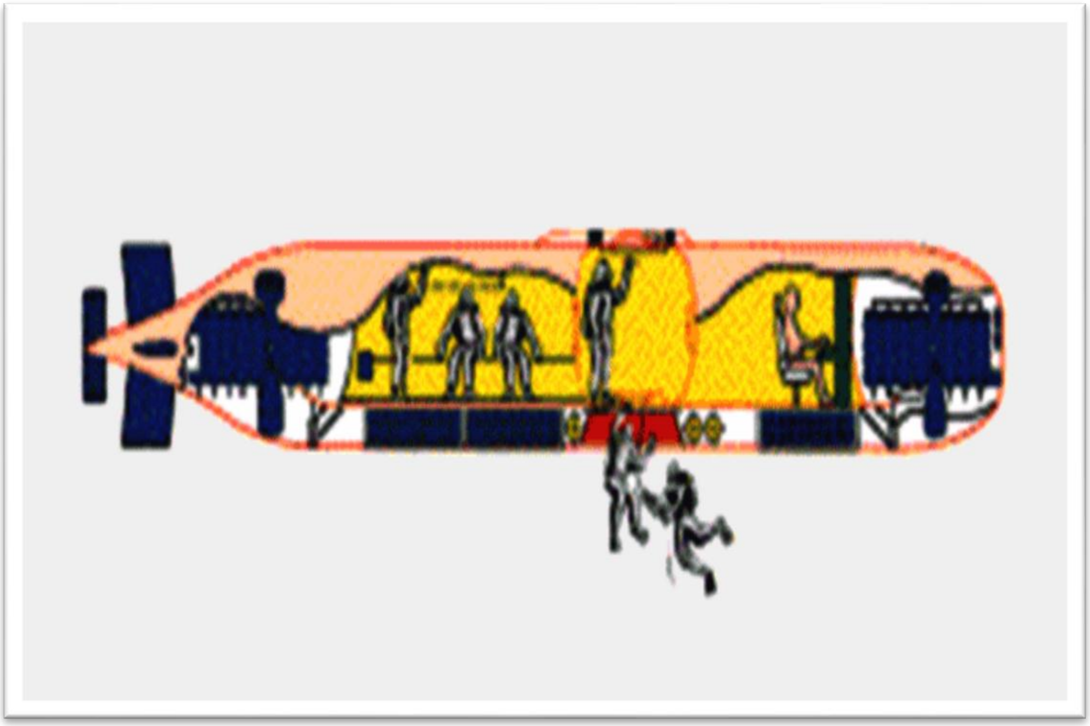

Figure 7: Artist's impression of ASDS. NSW archives.

Figure 8: ASDS docked with SSN while underway off of Hawaii. NSW archives.

ASDS Phase I

To develop and procure the ASDS capability described above, NSWC and USSOCOM turned to the Naval Sea Systems Command (NAVSEA), the Navy organization that engineers, builds, buys, and maintains naval platforms as well as other functions. Germane to this study are NAVSEA's program management, engineering expertise resident in their In-Service Engineering Agencies (ISA), and authority to set, enforce and certify technical and engineering standards for performance and safety.[23] Not wanting to "duplicate Navy and NAVSEA staffs," [24] NSWC and USSOCM relied on NAVSEA for program management, engineering expertise and technical oversight. The most specialized safety and engineering concern was the adherence to SUBSAFE requirements, which is the certification necessary to interface with submarines in the US Navy.

NAVSEA awarded three preliminary design contracts in 1992 to develop system concepts to meet performance specifications. In May of 1994, NAVSEA completed its cost and operational effectiveness analysis, estimating the cost to be $178M. However, upon USSOCOM direction as the program sponsor, the program manager awarded a cost-plus contract in to Westinghouse, a non-

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[23] "About NAVSEA", Naval Sea Systems Command, http://www.navsea.navy.mil/AboutNAVSEA.aspx (accessed 29 Aug 2001).

[24] Tom Richards, email Author interview with author, August 22, 2011. At the time, then CAPT Richards, USN (SEAL) was at NAVSEA as PMS/NSW. Richards would retire from the Navy as a RDML. CAPT Yarborough was in the N851 office, the CNO staff function of expeditionary requirements, a position that remains to this day. CAPT Calland held the newly created N-8 or requirements position on the new NSWC staff. These three officers were the action officers for the first commander of NSWC, then RDML LeMoyne, to draft the Memorandum of Understanding between Navy and USSOCOM surrounding RDT&E and acquisition. This memorandum would change through time and look substantially different for DCS.

submarine builder, for $78M, the lowest bid and a $100M or 128% spread below NAVSEA estimates. [25] This action, intended to execute the program at the lowest cost, placed the technical and programmatic risk on the government and the cost risk on USSOCOM as the program sponsor.[26]

At this point, USSOCOM appointed and funded NAVSEA PMS 399 as the program manager and Westinghouse began to develop and construct ASDS-1 as the first in its class. The original contract called for six hulls. The Assistant Secretary of the Navy for Research, Development and Acquisition (ASN[RDA]) delegated Milestone Decision Authority (MDA)[27] to NAVSEA, Program Executive Officer Submarines (PEOSUBS)[28] in September 1995.[29]

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[25] Author interview with Tom Richards, Portsmouth NH, August 11, 2011. Corroborated with NAVSEA ASDS Program History Brief. Electric Boat bid $89.3M, Newport News Shipbuilding bid $85.9M. Northrup Grumman later acquired Westinghouse and the contract obligation. It also acquired Newport News Shipbuilding where it later drew on submarine construction expertise and technical rigor.

[26] Author interview with Mark Pawlowski, Washington, DC, July 26, 2011. Mr. Pawlowski was Deputy Director, PMS 399, SOF Undersea Mobility, NAVSEA. Risk allocation principle confirmed with Dennis Gallimore, Author interview with author, Charlottesville VA, August 3, 2011. Mr. Gallimore was then the NNNS DDS planning yard manager and later the Program Manager for ASDS.

[27] MDA authority is the official, who works with the Program Manager, and who “will approve entrance into the appropriate phase or effort of the acquisition process by signing and acquisition decision memorandum upon completion of a successful decision review.” See Bradford Brown, *Introduction to Defense Acquisition* (Fort Belvoir, VA: Defense Acquisition University Press, 2008), 43. In plain English, he determines when the program moves from one phase to another. This is essential to the evolution of USSOCOM’s exercise of its unique authorities and is seen during the fifth and final episode of this case study when the Commander USSOCOM changes his acquisition strategy.

[28] “The position of [Program Executive Officer] or PEO was established in 1986 based on the Packard Commission Report. A PEO is typically a general officer or Senior Executive Service (SES) civilian-equivalent responsible for the first-line supervision of a group of like programs, each managed by a PM.” Ibid., 25.

[29] NAVSEA ASDS Program History. Also corroborated by William Hilarides, Phone interview, November 2, 2011. RADM Hilarides was former PEO SUBS. This seemingly innocuous act is fundamental to the story. The ASDS was placed under the supervision of the officer who supervised all programs grouped as submarine capabilities. As such, his

However, within one year, costs far exceeded budget and the program fell behind schedule. Both technical and contract performance were in jeopardy. Multiple investigations and two independent reviews identified issues ranging from ineffective program management on the part of the contractor as well as NAVSEA, changing operational requirements, a program un-executable as budgeted and a contractor with inadequate submarine design and construction experience.[30] This last finding of contractor inexperience directly addresses a principal theme of this study, the role of Special Operations peculiar requirements and innovation. PEOSUBS stated for the record that "thinking out of the box" by selecting a non-submarine builder to build ASDS because the builder was believed to have conceived a superior product was thought to be a good idea. Yet this characteristic has been a major impediment in the ability to perform the contract"[31] and this will be addressed later in this chapter.

Finally, Northrop Grumman Corporation, in a spate of defense industry consolidation, acquired Westinghouse Electric Corporation's defense business in 1996 and absorbed the contract obligation for ASDS.[32] By July 1997, the Assistant Secretary of the Navy for Research, Development and Acquisition recommended termination of the contract on the grounds of poor contract

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perspective on submarine design and safety certification will be based on putting a submarine fleet to sea and not a Special Operations-peculiar dry combatant submersible.

[30] This assertion is collaborated by multiple sources. NAVSEA ASDS Program History Brief, GAO Audits of 2003 and 2007, and Author interviews with NAVSEA and NGC program managers.

[31] NAVSEA ASDS Program History Brief. Corroborated by RADM Hilarides.

[32] "Our Heritage," Northrup Grumman Corporation, 2011, accessed October 26, 2011, http://www.northropgrumman.com/heritage/index.html. Confirmed by Author interview with Dennis Gallimore. Also important to this case, NGC acquired Tenneco, the parent company to Newport News Shipbuilding, builders of submarines in 2001, eventually naming the decision Northrop Grumman Shipbuilding. The technical rigor of Newport News became essential during episode three, described later in the chapter.

performance. NSW and USSOCOM, the program sponsor, however, rejected the recommendation and continued to fund the program with MFP-11 funding based on the argument that NSW wanted the requirement filled and the capability built.[33] This forced a show down between the Assistant Secretary of the Navy for Research, Development and Acquisition and USSOCOM, which USSOCOM won by using its bureaucratic powers and MFP-11 resource to continue funding the program. ASN RDA exercised its bureaucratic authority and increased the level of oversight over the program when it rescinded NAVSEA's milestone decision making authority, forced a re-baseline of the contract and a change in the NGC program manager.[34]

ASDS Phase II: Manufacturing and Engineering Development

Construction on ASDS continued under new management until 2000 when Northrop Grumman Corporation delivered it to Pearl Harbor for at sea testing, a process that was marked by months of disappointing failures. During 115 dives and 1,053 hours of ocean testing, multiple problems were discovered, the principal issues focusing around the battery and the hydraulic subsystem. In the case of the former, testing proved that the originally designed silver-zinc batteries did not meet the performance demands of the platform for endurance and replenishment. In the case of the latter, hydraulic failures repeatedly occurred during testing. Additionally, acoustic data testing pointed to the need for

[33] Author interview with Tom Richards, Portsmouth NH, August 11, 2011.
[34] NAVSEA ASDS Program History Brief.

developing and procuring a composite rotor.[35] In the midst of this upheaval, Electric Boat Company (EB), the principal competitor to Northrop Grumman Corporation and prime contractor for SSGN conversion,[36] released a report identifying unsteady hydrographic loads on ASDS during their computer modeling of ASDS operations on SSGN. This development added uncertainty to the program and further doubt in Northrop Grumman, the prime contractor for ASDS.

At this point, USSOCOM had spent $264M on the program, or a 300% increase in the cost for an operational prototype that did not meet specifications. This caught the attention of Congress, which who in the Defense Authorization Act of FY 2002 called for an audit by the Government Accounting Office, published in 2003. Congress demanded a reassessment of the program prior to the procurement of additional boats to complete the original six hull contract.[37] Specific direction included holding Milestone C decision[38], that is the decision to construct all six hulls, until ASDS-1 demonstrated that key problems were resolved and that ASDS had completed an Operational Evaluation. Additionally, Congress recommended that ASDS receive an ACAT 1 designation, increasing the level of executive oversight on the program. With an ACAT 1 level program,

[35] Ibid., 14-15

[36] At this time, doubt in the ability of Northrop Grumman to perform its ASDS contract was increasing. EB, as a competitor, was interested in unseating NGC for the remaining hulls in the event USSOCOM cancelled or rebid the program. This revenue stream surrounding ASDS as a cost plus contract presented no risk to a prime contractor.

[37] See GAO, *Report to the Committee on Armed Services, U.S. Senate: Defense Acquisitions: Advanced Seal Delivery System Program Needs Increased Oversight*, (Washington, DC: United States General Accounting Office, 2003). Also see U.S. Congress, Senate, *National Defense Authorization Act for Fiscal Year 2002*, S. 1438. 107th Cong., 1st Sess. (December 28, 2001).

[38] "The MDA makes the decision to commit the Department of Defense to production at Milestone C." See Brown, *Introduction to Defense Acquisition Management*, 48.

the MDA, per DoD regulation, becomes the Undersecretary of Defense for Acquisition, Technology and Logistics.[39] Within the year, ACAT 1 designation was achieved due to the levels of research and development funds expended on the program. [40] Meanwhile, as a result of the criticism over the cost plus contract in the GAO report and from DoD, NAVSEA and NGC agreed to a contract change. A Basis of Agreement (BOA) of 2003[41] shifted the acquisition strategy to a fixed price plus a fee, to some extent rebalancing the programmatic risk between the parties. Under the previous cost plus contract, where the contractor performed work with all of its costs covered and a fee charged, the prime contractor was not incentivized to perform. This type of contract occurs when the requirement is truly developmental and the government bears all the risk. However, with the fixed price plus a fee, the prime contractor absorbed some of the risk, in part because the project was not completely developmental at this stage and costs thus should have been able to be accurately predicted.

With new uncertainty introduced into the process, SOCOM moved Milestone C decision to May of 2004. Regardless of the uncertainty, USSOCOM accepted delivery of ASDS in June 2003. [42] In November 2003, USSOCOM declared that the platform reached Initial Operating Capability and was delivered in as-is condition to SDV Team ONE. SDVT ONE deployed on an extended

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[39] Ibid., 27. Also see "Department of Defense Directive 5000.1: The Defense Acquisition System," Department of Defense. (Washington, DC: Department of Defense, 2007).
[40] Ibid.
[41] Author interview with Mark Pawlowski. Also see NAVSEA ASDS Program History Brief
[42] NAVSEA ASDS Program History Brief. Tom Deghetto, phone interview by author, December 16, 2011

exercise and returned to port after an at sea mishap where the tail fell off the platform. The sequence of events surround this incident remains classified.

However, the impact of the tail failure is substantial. Commander Submarine Forces Pacific convened a mishap investigation board, and NAVSEA chartered a design investigation board to review the material failure surrounding the missing propeller, shaft and planes and damage to the internal structure of the entire tail and conduct to essential engineering oversight and certification functions. The investigation identified weakness in the tail structure as well as manufacturing issues with connecting components.[43]

USSOCOM, NSW, and NGC repaired ASDS and returned her to sea in early 2004. In April and May of 2004, the Navy's test and evaluation organization administered an Operational Evaluation of ASDS. Thirteen major and thirty three minor discrepancies were identified and corrective action was taken on all of them. Yet, in June of the next month, the stator, the piece that surrounds and protects the propeller, fell off while underway. Although some question the results, the official post event incident investigation report identified manufacturer performance issues. The immediate impact of the incident focused on USSOCOM, the program sponsor, as to whether it would continue to fund the program or cancel it. USSOCOM moved the Milestone C decision, for the second time, to September of 2005 and delayed the decision.

An additional problem was noted in May 2004 by the Electric Boat Company (EB), the principal rival to Northrop Grumman Corporation and an established, if not dominant, submarine builder. As noted above, the Electric Boat

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[43] NAVSEA ASDS Program History Brief. Investigation Reports viewed by the author.

Company notified NAVSEA that they had discovered that unsteady hydrodynamic loads were placed on ASDS while attached to a submarine.[44] This was a particularly important issue considering that the submarine was the only means of providing ASDS with its strategic mobility and operational maneuver. Strategic mobility could be provided by airlift, but operational maneuver to the objective area depended on submarine transport. This was subsequently confirmed with independent and mated instrument trials conducted while ASDS was embarked aboard a US submarine. Sensors were attached to the tail components under notional mission parameters, and the tests indicated premature fatigue on the tail section. In November of that year, NAVSEA approved tail section redesign concepts and repairs were made.[45]

Continued escalation of cost caused the Office of the Secretary of Defense (OSD) to re-designate the ASDS program to an ACAT-1D program in November 2004. This new designation maintained OSD level oversight, vice service secretary oversight, of the program. No longer simply a research and development expenditure driven categorization, this intervention by OSD ensured OSD would conduct and Independent Cost Estimates to support a Milestone C decision.[46] Although the validated operational requirement of six hulls remained in place,

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[44] NAVSEA ASDS Program History Brief. Author interview with John Green, Coronado, CA, July 28, 2011. Also of note during this period, NGC constructed a test pond in to conduct their own tests. Also corroborated in Author interview with Dennis Gallimore.

[45] NAVSEA ASDS Program History Brief. Mason Ward, Phone Interview by Author, November 27, 2011. Author interview with Jon MacDonald, November 27, 2011. Mr. Ward and CDR MacDonald were then the ASDS pilot and co-pilot.

[46] Department of Defense Directive 5000.1: "The Defense Acquisition System."

USSOCOM reduced the program quantity to three hulls due to rising costs and resource constraint.[47]

Yet more operational failures were in store for ASDS. In the spring of 2005, ASDS went back to sea for an operational exercise and experienced a catastrophic failure in the hydraulic reservoir, a critical component in the hydraulic system. Upon returning to port, the failed component had to be redesigned and repaired. Meanwhile, installation of the re-designed titanium tail section, the source of the previous catastrophic failure, and the new Lithium Ion battery, the component critical to the replenishment performance deficiency during the operations evaluation, were replaced. At-sea tests were conducted and both upgrades met design specifications during endurance tests with a replacement reservoir.

ASDS returned to sea in the fall of 2005, but at this point NAVSEA established an ASDS Reliability Action Panel or ARAP to assess the reliability of ASDS. The platform had simply experienced too many mechanical problems and its design and construction were considered too unreliable to continue without a full assessment. Independent of, but supplemental to, the ARAP, the US Navy commenced a Full Operational Test and Evaluation of ASDS to complete the congressionally mandated requirements for continued funding. After several days at sea, ASDS attempted to launch from a host submarine when the propulsion motor thrust bearing, the part that the propeller shaft sits against to drive the ship forward when the propeller cuts through the water, failed. ASDS returned to port,

[47] NAVSEA ASDS Program History Brief.

attached to the host submarine and later offloaded. NAVSEA promptly decertified the ASDS for operations, ending ASDS's ill-fated second phase.

ASDS Phase III

At this point in the process, the ASDS program and the actors involved with the program began to re-assess their positions. USSOCOM decided not to construct hulls for ASDS-2 and ASDS-3 in October of 2005. The NAVSEA program manager, PMS 399, in an attempt to determine the limit of the platform's ability to absorb the identified hydrodynamic loads identified in the previous studies and demonstrated in the operational failures, conducted trials with ASDS mated to a submarine in January of 2006. The operating limit of the mast and stern components were identified. USSOCOM rescinded the fielding and deployment release letter for ASDS-1 in March of the same year. At this point, ASDS was no longer an operational asset. However, the program took a new direction.

ASDS ACAT-1D designation required Undersecretary of Defense level oversight. In April of 200, the Undersecretary of Defense for Acquisition, Test and Logistics cancelled the program and directed the Navy, in consultation with USSOCOM, to establish an ASDS Improvement Program (AIP) and evaluate an Alternate Material Solution.[48] Although Congress supported this DoD decision,

[48] GAO, 2007.

they intervened and required an audit of the program prior to allocation of Fiscal Year 2006 funds.[49]

USSOCOM, as the program sponsor and responding to the OSD direction to establish the AIP, convened an Executive Interim Planning Team (EIPT) meeting in July of 2006 and established three priorities for the AIP: fix ASDS-1, validate the capability gap, and assess alternate material solutions, which in turn drove actions across the broader ASDS enterprise. The fix the ASDS-1 priority contained four elements: two staff and design efforts and two efforts where action occurred with the platform itself. The two staff and design projects were executed sequentially and included a Critical System Review or CSR and an Independent Technical Peer Review or TPR. These two projects employed an Integrated Product Team (IPT) concept that was adapted by the defense acquisition community "from commercial business to streamline an antiquated, inefficient, stove piped process."[50] IPTs are designed to bring the stakeholders together and, for ACAT 1D programs specifically, to resolve issues and provide strategic guidance.

The resulting action aspects of AIP took the results of the two staff and design projects and enacted their findings and guidance and tested them. For ASDS, this included performing a series of repairs on the boat that included redesigned and manufactured parts. These repairs were grouped into three "reliability builds" that were later scheduled with NSW and performed on the

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[49] U.S. Congress, House, *National Defense Authorization Act for Fiscal Year 2006*, H.R. 1815. 109th Cong., 2nd Sess. (January 6, 2006).
[50] Brown, *Introduction to Defense Acquisition Management*, 32.

ASDS by NGC in Pearl Harbor.[51] The second component involved scheduling time with the submarine force for at-sea verification and testing of performance improvements. The remaining efforts to verify the capability gap as directed by DOD and to assess an AMS, consistent with the JCIDS process, were outsourced to the RAND Corporation, a non-profit think tank with extensive and evolving relationships with government, academia and industry.

Four attributes characterized the CSR process and were intended to add technical rigor to the process, something that multiple audits had noted was missing from the ASDS program. These four requirements included (1) traceability of action, (2) design evaluation, (3) operations and logistics review, and (4) reliability modeling prior to action. The Northrop Grumman Corporation created their own design teams to review their design while incorporating technical support from selective government, industry, and academia. The reviewed designs from NGC were then passed through the two stage government-led Technical Peer Review process.

In the first stage, government-led Independent Review Teams (IRT) teams consisting of subject matter experts from Navy, industry, and academia reviewed the Northrop Grumman Corporation designs and assessed them for completeness and content. The IRT assessments were then passed to the government Technical Peer Review Board (TPRB) for final review, approval and prioritization of CSR results. The TPRB was chaired by NAVSEA PMS 399 and voting members consisted of USSOCOM, NSWC, and NAVSEA technical code 05. The outcome of the process was a prioritized list of re-design and repair tasks that covered

[51] NAVSEA ASDS Program History Brief.

material and design, operations, maintenance, monitoring and training aspects of the program.[52]

From 2006 through 2008, ASDS underwent a series of vehicle upgrade and repair periods followed by standard maintenance periods called "Fleet Maintenance availabilities" plus two Reliability Builds that addressed dozens of discrepancies critical or essential to system reliability. These included the tail re-design, the hydraulic reservoir redesign, the environmental control unit redesign, and the lithium ion battery, which are discussed later in this chapter. At the completion of the reliability builds, the Navy employed their internal engineering quality control unit used by NAVSEA PEOSUB on significant submarine development, named TIGER, to measure the improvement to reliability. The TIGER team judged the ASDS as sufficiently reliable and capable of meeting USSOCOM's capability requirements assuming that the platform was prepared and operated under certain limits.[53]

From August 2006 through January 2008, ASDS underwent significant underway operations both in the local Hawaiian operating areas as well as after making long at sea transits to the forward naval station in Guam without one critical mission failure. As a result, USSOCOM declared ASDS operational on 6 July 2007. ASDS-1 was a man of war again! Follow-on operations included a successful repeat of the previously failed operational test and evaluation in March and April 2008 and a follow-on cold water pool testing in May of 2008. In the former case, multiple tests of anticipated operating profiles were conducted and

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[52] NAVSEA ASDS Program History Brief; Author interview with John Green,Coronado, CA, February 17, 2011.
[53] NAVSEA ASDS Program History Brief.

operations with the SSGN as the host platform were certified. Conversely, diver proficiency and equipment system performance was central to the testing. As ASDS continued along the reliability build and test and verification path, the two staff and design components of the AIM progressed.

Now that the AIP was concluding, the DoD-directed task - conducting an Alternate Material Solution Analysis, or AMS, intended to determine whether the USSOCOM's capability requirement for a dry combatant submersible, could be filled by other means - needed to be addressed. The AMS effort was co-chaired by DASN (Ships) and USSOCOM and conducted by the RAND Corporation from June 2007 through March 2008. The classified study compared the ASDS capabilities against a broad range of alternate solutions potentially capable of fulfilling USSOCOM's operational requirement that had been validated by the JCIDS process and the Joint Requirements Oversight Council, or JROC, that was chaired by the Vice Chairman of the Joint Chiefs of Staff.[54] These alternatives included the modified and improved ASDS-1, SDV, new designs for a hybrid of both, semi-submersibles, surface crafts, unmanned vehicles, other air and space platforms or any operational concept that combined any of the alternatives listed.[55] However, the requirement for a dry combatant submersible to provide undersea clandestine maritime mobility for NAVSOF remained in-tact.[56]

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[54] The role of the JROC in the JCIDS process is described in Chapter 2.

[55] The RAND Study is classified due to the listing of specific capabilities. However, the concept is accurate and confirmed from multiple sources. NAVSEA ASDS program brief.

[56] Alternate Material Solutions Analysis. This brief is classified, however, it has been reviewed by the author. Confirmed through Author interview with John Green, Feb. 1, 2011. Also corroborated by Author interview with Sean Pybus, New York City, December 1, 2011.

At this point, ASDS appeared to be back on track to becoming a reliable platform with some important new insights coming from the process. For example, the defense establishment now understood the environmental impact on ASDS technology, such as hydrostatic loads that in the end drove operating limits, and some of the technical limitations that had not been understood prior to USSOCOM's massive development effort. Some of those insights were being applied across the Navy, in composite propellers or Lithium Ion Batteries for example.

NAVSEA re-certified its design and verified that it could be operated safely and predictably and USSOCOM released ASDS for operational use. However, USSOCOM had decided that ASDS would remain a unique operational platform and that production would not be scaled up to meet either its originally intended or its later modified hull numbers. Rather, the insights learned with the ASDS would be incorporated into a follow-on platform design that would not restrict the operating parameters of the host submarine.[57]

Sadly for this version of the ASDS, final catastrophe struck in November of 2008 while ASDS was on the blocks at SDVT-1 in Pearl Harbor, HI. While out of the water, the lithium batteries self-combusted as they were charging in their canisters attached to the ASDS. Pressure built up to a point that the titanium canister blew open and melted off the ASDS' Hy-80 steel pressure hull, causing a spectacular fire that burned for days. Post incident investigations revealed

[57] Author interview with Eric T. Olson, Newport RI, May 10, 2011.

unknown issues with the Lithium Ion batteries.[58] Repair estimates for ASDS were estimated at 180M more than the ASDS's program and deemed by USSOCOM too expensive in light of competing requirements.[59] ASDS was cleaned and placed in extended layup with the holes in the hull still visible, concluding ASDS's third, unfortunate, phase.

Phase IV: ASDS to JMMS

During the later stages of the reliability builds and the verification testing activities, decision makers within the stakeholder organizations of the IPT saw that the ASDS' reliability had dramatically improved. This progress coincided with the release of the AMS, or Alternate Material Study, which confirmed that a capability gap that required a dry combatant submersible still existed, meaning that the effort in time, energy and resources had not been wasted.[60]

After the demise of the ASDS program USSOCOM faced two problems. First, NSW's long-standing operational requirement for a dry combatant submersible had not been met. And second, the capability gap study and AMS performed during the ill-fated ASDS program emphasized the importance of meeting NSW's requirement. Thus, far from being deterred by the failure of the

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[58] D. M. Duryea, "Command Investigation into the Circumstances Surrounding the Fire of the Advanced Seal Delivery System (ASDS) on 09 November 2008 at Pearl City, Hawaii," Naval Special Warfare Command (00J) Commander (Washington , DC: Department of the Navy Naval Sea Systems Command, 2009).

[59] William Cole, "Prototype Mini-Sub Shelved," *Honolulu Advertiser*. July 25, 2009. http://the.honoluluadvertiser.com/article/2009/Jul/25/ln/hawaii907250321.html (accessed November 1, 2011). Also in Author interview with ADM Olson, Newport, RI, May 2011.

[60] The AMS is classified, but has been reviewed by the author. However, for the purposes of this study, the identification of a capability gap is all that is required. This information has been confirmed by multiple Author interviews with actors within the IPT, most convincingly by NSWC's Mr. John Greene, July 28, 2011.

ASDS program, USSOCOM in the spring of 2008 requested $43M for research and development for a follow-on platform for fiscal year 2010 and a full operating capability by fiscal year 2016.[61]

USSOCOM intended to take advantage of the lessons learned and the technological advancements made from the ASDS experience and apply it to a platform that was named the Joint Multi Mission System or JMMS.[62] The operating concept behind the JMMS was the same as that of the ASDS, a dry combatant submersible that was attached to the deck of a US Navy submarine, capable of withstanding the hydrodynamic loads put on it without limiting the operating parameters as the host submarine. This program consisted of three hulls for an estimated $1.2B as opposed to the original $78M contracted for six ASDS hulls with Westinghouse.[63]

Congress agreed to appropriate the requested sum in fiscal year 2010 on the condition that USSOCOM broaden its consideration of possible stakeholders for the program and specified that the Director of National Intelligence (DNI) collaborate on the requirements for the platform.[64] Additionally, Congress attached several earmarks to the FY 10 Defense Authorization Act for components of the JMMS to further the program.[65] USSOCOM followed the

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[61] U.S. Congress. House. *National Defense Authorization Act for Fiscal Year 2010*. H.R. 2647, 111th Cong., 1st sess. (October 28, 2010).
[62] Author interview with Gard Clark, Washington, DC, November 15, 2011; Todd Deghetto, phone interview by Author, December 16, 2011; Author interview with Guy Kemp, San Diego, CA, July 28, 2011.Also Author interviews with John Green (Feb. 17, 2011) and Eric Olson (May 2011).
[63] Author interviews with Green (July 28, 2011) and Olson.
[64] U.S. Congress, House, *National Defense Authorization Act for Fiscal Year 2010*, H.R. 2647. 111th Cong., 1st Sess. (October 28, 2010).
[65]Ibid.

direction of Congress and approached the DNI to identify the JMMS as an operational requirement, a requirement that is often filled by the US Navy submarine force. The DNI declined to support the requirement stating that it did not fulfill a national level intelligence requirement.[66] At this point, JMMS did not find sponsorship within other departments of the executive branch of government, specifically the intelligence community, leaving DoD to absorb the full cost of the platform.

Within the policy level of the Department of the Navy, discussions occurred in the summer of 2008 that resulted in the Secretary of the Navy calling for a review of the Navy's entire undersea strategy to support resource allocation across the undersea force. [67] The JMMS and a Dry Combatant Submersible capability was one of the subjects of the review. Within that strategy review, the similar recommendation that a follow-on platform to the ASDS be developed that leveraged the lessons learned from the ASDS. The most significant lesson for all stakeholders was a design input that did not limit the operating parameter of the host submarine. Industry in particular liked this alternative as it opened the contract up to more participants and provided a new revenue stream.

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[66]Admiral Eric T. Olson (USN, ret) former commander USSOCOM, Phone interview by Author, October 23, 2011. Note that had the DNI identified the JMMS to fill a national level intelligence requirement, National Intelligence Program resources would have become available for the development of JMMS. John Houfek, telephone interview by Author, October 20, 2011. CAPT Houfek, USN (SEAL) was the Assessment Director for all of USSOCOM procurement programs.

[67]Winford Ellis, phone interview by Author, October 7, 2011. RADM Ellis was the Special Assistant to the Secretary of the Navy for Undersea Warfare and architect of the "Summit" meeting. He is now the Chair, Undersea Warfare and Director of the Undersea Warfare Research Center, Naval Post Graduate School, Monterey, CA.

In the summer of 2008, the Special Assistant to the Secretary of the Navy for Undersea Warfare convened a “Summit” between the Secretary of the Navy, the Chief of Naval Operations, and the Commander of USSOCOM, to determine the future of the capability presented by the JMMS.[68] The term “Summit” was given to signify the interaction between the leaders of both the Naval Service and USSOCOM to resolve resourcing issues as outlined in Section 167 of Title 10 US Code.[69] The Commander of USSOCOM attended the Summit with the explicit interest of determining whether or not the US Navy was interested enough in the capability to invest resources to develop the platform or at least to advocate for it by stating that the JMMS fulfilled a Navy requirement.[70] The Chief of Naval Operations found the capability compelling and endorsed the idea of a dry combatant submersible; communicating that if USSOCOM developed the capability, the Navy would continue to take advantage of the capability; however, he would not provide resources, or Navy Funds, for its development and procurement.[71] The Navy’s priority lay with other platforms required by his surface, submarine and air components that supported major fleet operating concepts and operations. In fact, although three distinctive competencies were shared by both the Submarine Force and Naval Special Warfare, these three

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[68] David Norris, e-mail interview by Author, October 18, 2011. CAPT Norris (ret), was the Special Assistant to the SECNAV and his Executive Assistant who conceived, planned, staffed and briefed the summit meeting. October 2011. Also corroborated by Author interview with RADM Ellis, October 7, 2011.

[69] Title 10, Section 167 US Code states that the Commander of USSOCOM interacts with the Service Secretary to determine resourcing issues, as described in chapter 2.

[70] Eric T. Olson, phone interview by Author, October 23, 2011.

[71] Corroborated by Author interviews with both ADM Olson (ret.), April 2011, and RADM Ellis (ret.), both participants in the “Summit”.

linking competencies, were not enough to overcome differing prioritization of resources within two different operating concepts.[72]

With both the DNI and the Navy stating that they had no operational requirement for the JMMS, USSOCOM was faced with the reality that the JMMS was a single purpose DCS with the function of transporting SEALs over extended ranges in extreme environmental conditions towards their objective. The JMMS was truly a Special Operations Peculiar platform. This left USSOCOM with a choice; cancel the program due to lack of stakeholders to share the cost or go it alone as the sole stakeholder. But, USSOCOM did not have the funding to develop and procure the JMMS platform with multiple hulls within its unique Major Force Program Eleven (MFP-11) budget that is dedicated to the procurement of Special Operations Peculiar equipment and under the direct control of the Commander USSOCOM.[73]

USSOCOM persisted with fulfilling the capability. The Commander of USSOCOM arranged an audience with the Deputy Secretary of Defense and presented the requirement and identified the sequence of events. The Deputy Secretary of Defense agreed with the commander of USSOCOM and felt that the capability was in fact a national strategic capability. The Deputy Secretary of Defense served as the chair of the Deputies Advisory Working Group or DAWG, the policy level decision making body which performed a capabilities integrating function that rationalized the allocation of resources. The group made trade-offs between capabilities at the policy level between the military services. The Deputy

[72] The concept of distinct and linked competencies introduced in Chapter 2 will be applied in detail in Chapter 4.
[73] MFP-11 is covered in Chapter 2.

Secretary of Defense controlled the budget and allocated a $1.2B increase to USSOCOM's budget to fund the JMMS.[74] However, in September 2010, the Office of Secretary of Defense Cost Assessment and Program Evaluation (OSD CAPE)[75], in arguably one of the most important events in the history of the DCS capability, intervened and withdrew $500 million from the program,[76] leaving USSOCOM with $700 million, enough funds to develop and procure one platform. USSOCOM was once again forced to reassess the JMMS program and concluded that the $700 million in available funds would build only one platform and not provide for the sustainment of the vessel after it entered service. One platform simply would not produce the scale necessary to fulfill its undersea maritime SOF-Peculiar requirements.[77] USSOCOM was then left with the option of taking the money from its other validated requirements, which it refused to do because of immediate wartime requirements from all the special operations service components as well as the competing demands of the other special operations service components requirements that provided a source of competitive advantage, specifically the MH-47 helicopter destined for the Special Operations

[74] Ibid. Author interview with Rich Blank, Washington DC, November 15, 2011. Also Author interview with Eric Olson (May 2011) and Author interview with John Green (July 28, 2011). The Honorable Gordon England, Former Deputy Secretary of Defense. Phone interview with author. January 12, 201.1 Mr. England made the decision.

[75] OSD CAPE analyzes plans, programs and budgets in relation to defense objectives, projected threats, allied contributions, estimated costs and resource constraints. "Cape: Coast Assessment & Program Evaluation", http://www.cape.osd.mil/ (accessed 25 October 2011).

[76] USSOCOM briefing to SECDEF. "SOF Undersea Mobility Way Ahead." PowerPoint Presentation. 2010.

[77] Author interview with Mark Mullins, Newport, RI, 20 Oct 2011. CAPT Mullins, USN (SEAL) was the staff officer working the issue. Author interview with the Honorable Gordon England. Three platforms are needed to enable one platform to remain at sea and provide an ongoing capability.

Aviation Regiment, a part of the Army Service Component. The ill-fated second dry combatant submersible program, JMMS was cancelled in August 2010. [78]

JMMS to S301

The final phase of ASDS's development occurred through Naval Special Warfare's advocacy. As early as 1997, Northrop Grumman's Newport News Naval Shipbuilding had approached the Commanding Officer of SDVT-2 to present alternative ideas to the troubled Westinghouse design. The Commanding Officer suggested that the ASDS concept was not working well and that they should think differently or at least like other providers of SOF equipment that gets transported inside an airframe. The fundamental problem was that the operators needed to stay dry as long as possible, the platform had to be protected from the hydrodynamic loads, and the program cost needed to be contained. This was the beginning of the DCS strategy, an innovative idea that was introduced into the organizational structure through an individual in a position of authority yet outside of the process.[79] The concept was forwarded to the Naval Special Warfare's main headquarters, and eventually the Dry Dock Shelter planning yard manager met with the Commander of Naval Special Warfare and presented the concept. At the time, however, the concept, even in the midst of the enormous program difficulties, seemed too hard to conceive of as an alternative solution and destined to stall: putting a dry combatant submersible inside the existing Dry

[78] Author interviews with Eric Olson (May 10, 2011), Todd Deghetto, and Rich Blank.
[79] This initial meeting was with the CDR Guy Kemp, Commanding Officer of SVT-2, an individual in a position of authority within the structure. It will become important in the innovation analysis chapter.

Dock Shelter was simply too hard to imagine or too difficult to change direction at that stage of the development of the capability.[80]

Although the capabilities discussed in 1997 were limited compared to the ASDS, the innovative concept that would place a DCS inside the proven protective hull of the DDS while embarked onboard a US submarine was influenced by programmatic and operational realities. Constraining the program was the budget reality that the older, longer and larger 640 and 637 class submarines were going to retire from service, leaving only the 688 class to provide strategic mobility and operational maneuver for the NSW undersea capability. The 640 class was a converted ballistic submarine and the 637 was a longer, larger and deeper diving fast attack submarine. The 688 class was the main-stay of the submarine force that was designed for speed and firepower for gaining sea control. NSW needed a plan from the submarine force that guaranteed the SEALs would receive a submarine for strategic mobility. A decision had to be made, and that decision was JMMS.[81]

As previously discussed, ASDS was in the midst of solving reliability issues, massive cost overruns and the effort to rebuild the boat to put her to sea. At this point, the Submergence Group, LLC was operating the S201 under contract with the Navy as an inexpensive platform to test new technology and

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[80] This story has been corroborated by Author interviews with all three actors involved, then CDR Guy Kemp (ret.), C.O., SDVT-2, the author's C.O., Mr. Dennis Gallimore, and RDML Tom Richards (ret.), then the Commander of Naval Special Warfare.

[81] Author interview with Guy Kemp, San Diego, CA, July 28, 2011. CDR Guy Kemp (ret) was former CO of SDVT-2 and involved with the story. Currently serving as NSWG-3 N83, Operational Requirements Analyst.

subcomponent equipment for naval applications[82] without requiring the Navy to either dedicate expensive underway submarine time or more importantly, requiring the new technology or subcomponent equipment to pass through NAVSEA certification.[83] It approached Naval Special Warfare in 2005 with an unsolicited concept that would allow NSW to provide the SOF peculiar requirements needed to insert SEALs into denied and politically sensitive areas for a fraction of the price of the ASDS.[84] Submergence Group, LLC is a private company that specializes in the design and fabrication and operation of experimental submersibles.[85]

At this point, the concept of putting a dry combatant submarine inside the DDS stayed within the NSW undersea component. During the original introduction of the idea of a dry combatant submersible transported inside the protective shell of the DDS in 1995, SDVT-2 was organized under Naval Special Warfare Group One, the major command that led all of the east coast NSW capabilities. However, NSW's undersea capability had since been re-organized under its own major command, Naval Special Warfare Group THREE (NSWG-3), which provided increased organizational stature within NSW and direct access to the NSW commander,[86] along with the accompanying additional staff and

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[82] Brett Phaneuf, phone interview by author, October 7, 2011.
[83] NAVSEA certification of everything that operates off of or goes onto a Navy nuclear submarine is an organizational imperative. This will prove important.
[84]Tom Carlson, phone interview by Author, August 3, 2011. CAPT Carlson was the commander, Naval Special Warfare Group 3. Corroborated with Mr. Guy Kemp, who was at the time, NSWG-3 Requirements Analyst.
[85] Brett Phaneuf, phone interview by Author. The Submergence Group had previously developed the S201, a deep diving research vessel.
[86] As discussed, one of the impacts of the creation of USSOCOM was the creation of Naval Special Warfare Command, the naval service component to USSOCOM and an

resources to advocate for the dry combatant submersible. Over the next several years, discussions occurred between NSWG-3 and Submergence Group over how to solve the three fundamental issues behind the Special Operations Peculiar requirement for a DCS: keeping the SEAL operators as dry as possible for as long as possible, avoiding the hydrodynamic loads found on the back of a submarine, and containing the costs.

Promare, an operator of the S201, leveraged their experience successfully developing and operating the S201 submersible and developed a design to fulfill NSW's undersea operational requirements. They designed the test prototype submersible that later came to be called the S301. This ad hoc process revolved around iterative communications focused on acquiring direct input and accounting for feedback from NSWG-3, the end user, during the design phase.[87] NSWG-3 and NSW did not provide financial resources for the development of the platform. Instead, they facilitated Submergence Group's ability to test the eventual platform with logistical access, such as pier and warehouse space,[88] and facilitated Promare's access to Research and Development Funding from OSD and USSOCOM.[89] The eventual outcome was an unfunded operational prototype called the S301 by Submergence Group.

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echelon two command. The impact of this decision was the re-organization of the SEAL teams, to include the creation of two functional commands that specialize in undersea and surface mobility or Naval Special Warfare Groups THREE and FOUR respectively. Prior to this, all of NSW was under two group commanders subordinate to the amphibious forces of both the Pacific and Atlantic Fleets.

[87] Brett Phaneuf, phone interview by Author. Corroborated by Author interviews with NSWG-3's Mr. Guy Kemp and Mr. Tom Carlson, former Commander NSWG-3.

[88] Author interview with Carlson, and the thank-you letter to the author when he served as Commanding Officer, SDVT-1 in Pearl Harbor Hawaii.

[89] Brett Phaneuf, phone interview by Author.

NSWG3 took the initiative and provided CNSWC with a military utility assessment plan for the S301, a dry combatant submersible of an entirely new operating concept on February 12, 2010.[90] The unclassified mission description stated,

> (U) S301 is a one atmosphere battery powered submersible, designed to provide a warm, dry environment for up to eight personnel for an extended period of time. The submersible is primarily intended to be an experimental concept vehicle, operated within specific safety boundaries.
>
> (U) S301 is designed as an evaluation platform for underwater infiltration and exfiltration of special operations personnel, and can be operated from a number of host platforms, including internally modified existing Dry Deck Shelters. Up to six personnel with equipment can be transported; two additional personnel are required to operate the submersible.[91]

The platform is twenty-five feet in length and six feet abeam and weighs 13 tons. Its operating depth is 820 feet with a lock-in and lock-out capability of 165 feet. It is operated by a two-man crew and transports six passengers with equipment or some mix of cargo. Powered by a lithium ion battery, its threshold and objective range is 150NM at 5 KTS speed. Endurance is a critical factor, especially in cold

[90] T. H. Deghetto, "S301 Concept Vehicle Data Collection and Military Utility Assessment Plan." (San Diego, CA: Department of the Navy: Naval Special Warfare Group THREE, 2010).
[91] Ibid., 3.

water. Designed to operate in water between 29 to 100 degrees Fahrenheit, the vessel's threshold and objective endurance times are 12 and 24 hours respectively, each with two-man crew and six passengers. Most important for the story and this study, its engineering certification is greater than American Bureau of Shipbuilding standards.[92]

Figure 9: Artist's impression of S301. "S301 Swimmer Delivery System Specifications," Submergence Group, LLC, http://www.submergence-group.com/s301_sdv_specs.php (accessed October 4, 2011).

[92] Ibid., 11-12. This information is derived from the Measures of Effectiveness and Suitability and Critical Technical Parameters Tables of the S301 Concept Assesment.. Also see "Submergence Group, LLC Home," Submergence Group, LLC, http://www.submergence-group.com/ (accessed November 10, 2011).

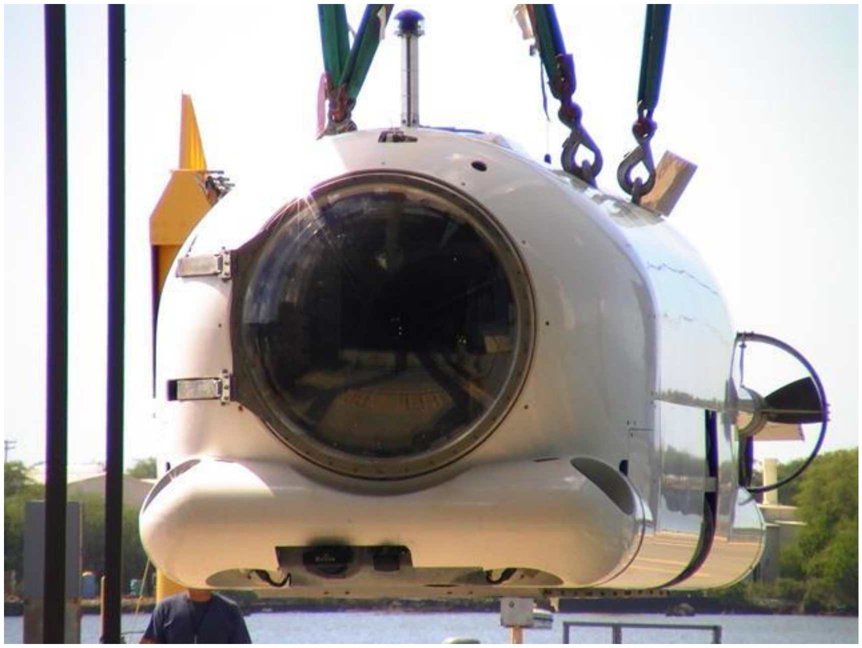

Figure 10: S301 ashore. "S301," MSubs Ltd, http://www.msubs.com/Images/Submarines/S301/S301%20-%205.jpg (accessed October 4, 2011).

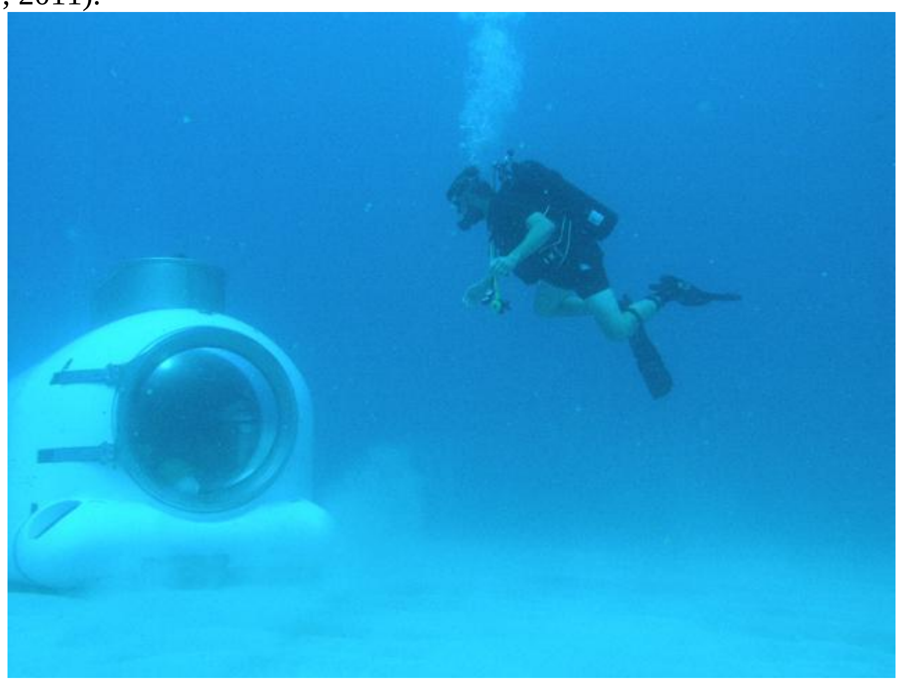

Figure 11: S301 and diver. "S301," MSubs Ltd, http://www.msubs.com/Images/Submarines/S301/S301%20-%201.jpg (accessed October 4, 2011).

Despite these high standards however, the S301 ran into bureaucratic resistance inside the US Navy almost immediately. NAVSEA, the US Navy's organization that is chartered to provide independent engineering, design, and safety assessment and certification as well as develop and manage naval acquisition strategy and programs, did not have engineering design or safety certification authority over this platform because it was a USSOCOM program. It was skeptical of the idea and positioned itself to protect its role in certifying anything that operated off of a US Navy submarine. In a letter to NSW dated 03 August 2010, NAVSEA PMS 399, the functional staff element within NAVSEA with the Deep Submergence portfolio, identified initial risks and issues with the S301 concept to NSW and USSOCOM directly.[93]

Broadening the discussion and the audience to what could become the entire Defense Establishment, PMS 399 tasked Oceaneering International, the contracted In-Service Engineering Service Agency,[94] to report on the feasibility of the S301 concept. Although the study, released in July of 2010, identified several technical "hurdles" with the concept relating to available space in the current DDS, the report reported that the S301 concept was "possible." The technical hurdles focused around the actual working parts of the shelter and its operation

[93] Author interviews with Mark Pawlowski, Brian Polotiere, and Mark Beale, Washington, DC, July 25, 2011.

[94] NAVSEA oversees the In-service Engineering Agencies that provide technical and engineering expertise across all aspects of Naval platforms. This capability is a matrix organization organized along both warfare lines that group similar platforms such as surface ships, submarines, and aircraft, and along integration and system lines such as command and control systems. Germane to this study is the Naval Undersea Warfare Center for submarines and the outsourced technical and engineering expertise for Deep Submergence, the contracted ISEA is Oceaneering Internation, also called the DDS Planning Yard. Author interview with Mark Pawlowski.

with S301 inside the shelter.[95] In essence, the report said that, the larger vehicle strained the supporting structures and operating procedures within the shelter. Examples included track fouling, access to scuba stowage, tie-down points, obstruction of view, and other similar issues. The two most important technical and design hurdles identified centered on the current configuration of both the S301 and the DDS; the S301's size prevented the swing bolts that lock the outer door shut during transit and obstructed the emergency ingress and egress route of both DDS and S301 diver and SEAL operators during diving operations.[96]

While NAVSEA continued to examine risk, USSOCOM adopted this very different approach as it maneuvered towards its third attempt to develop and procure the SO-peculiar clandestine undersea mobility capability resident in the DCS platform. First, USSOCOM adopted a new operating concept. Although NSW had dedicated enormous amount of time developing a bottom-up alternative, USSOCOM had dedicated time and effort for developing an alternative as well. Inspired by the Chief of Staff of the Army's decision to cancel the large and expensive Apache Helicopter program in favor of a family of rotary wing platforms, the Commander USSOCOM adopted the concept of a family of dry combatant submersibles.[97] The operational premise behind the new strategy rested on the epiphany that the competitive advantage was not based on the capabilities of the DCS but on the DDS itself. If the right DDS could be

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[95] T. H. Deghetto, "S301 Concept Vehicle Data Collection and Military Utility Assessment Plan," February 12, 2010. N8/077. Department of the Navy, Naval Special Warfare Group Three, San Diego, CA.

[96] Ibid, Hurdle Numbers 6 and 15.

[97] The Chief of Staff of the Army at the time was GEN Schoomaker, the former commander of USSOCOM. The interaction of bottom up and top down driven innovation is seen at this juncture. Author interview with ADM Olson, 23 October 2011.

constructed that would protect the DCS and any cargo or platform that was transported inside it from the ocean environment during transit while also isolating the impact of an unintended casualty from sinking the submarine platform, great operational flexibility in the types of capabilities that could be deployed from the platform would be gained, along with greater flexibility in the execution of the capabilities development and acquisition program could be gained.[98]

The second component of the new strategy rested in changing how USSOCOM leveraged its unique authorities to execute the acquisition program. Previously, USSOCOM, the resource sponsor, articulated, advocated for, and funded the requirement, while relying on the Navy to provide design oversight, engineering expertise, program management to include milestone decision authority, and engineering and safety certification. This time, however, USSOCOM intended to perform *all program management and acquisition functions* in an attempt to control the outcome and actually develop, procure, and employ the SO-peculiar capability it desired in accordance with the authority it understood it had been granted in legislation.[99] To execute this intention, USSOCOM parceled the plan into multiple parts.

First, COMUSSOCOM briefed the Deputy Under Secretary of the Navy for Acquisition, Technology and Logistics of his plan and then invoked USSOCOM's legislated authority to request a change in operational concept from

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[98] Ibid. This combination of bottom up and top down innovation will be covered later in the study.
[99] Author interview with ADM Olson COMUSSOCOM, 23 October 2011

the Secretary of Defense in October of 2010.[100] Thus, instead of developing a large platform that attached to the hull of a submarine piggyback and thus was exposed to the hydrodynamic loads that stressed the ill-fated ASDS, USSOCOM adopted the concept illustrated by the S-301 to place different size DCS that would fit into the existing and reliable DDS that housed and protected wet SDV from environmental conditions.

As such, the operational capability of a smaller and lighter dry combatant submersible or DCSL for Dry Combatant Submersible Light would be less than that of the ASDS or JMMS. The new strategy also envisioned a second larger dry combatant submersible or DCSM, or Dry Combatant Submersible Medium with greater range, payload and loitering capability that would complement the smaller DCSL as well as provide the option to operate from a platform other than a submarine. Of particular significance in the DCSL is the idea that USSOCOM would not be restricted by the certification constraints presented by NAVSEA or the prioritization of submarine availability by the Navy. Together the two platforms would fill the identified capability gap. Over time, the existing DDS would need to be first extended and then replaced with a longer and updated model to accommodate both DCSL and DCSM.[101]

[100] USSOCOM briefing to SECDEF. Corroborated with Rich Blank, "Special Operations Forces Undersea Mobility Way Ahead," PowerPoint Presentation, PEO Maritime/US Special Operations Command, 2010.
[101] USSOCOM briefing to SECDEF

The Secretary of Defense approved the request.[102] In March of 2011, USSOCOM, in testimony to the Senate Armed Services Committee, announced his intention to re-align his undersea strategy.[103] Congress concurred and inserted into the FY 12 Defense Authorization Bill language specifically designating the "undersea mobility acquisition program of the United States Special Operations Command as a Major Defense Acquisition Program."[104] By declaring it a major force program and designating it an ACAT-1D program as a condition of its funding, Congress ensured that the program received extensive policy oversight by the USD AT&L.

Second, to execute this strategy, USSOCOM felt it needed to expand its search for conceptual designs beyond US manufacturers. Although there is a very well established submarine industry in the United States with great depth in expertise and infrastructure for fleet size submarines, it lacked the manufacturing experience and infrastructure for small submersible platforms. In March of 2011, USSOCOM requested an exception to US law that governs shipbuilding of US military vessels and states no vessels can be constructed for any of the armed forces in a foreign shipyard. USSOCOM wanted to widen its aperture to a broader pool of designs and foreign builders that could construct a prototype and transfer

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[102] U.S. Library of Congress, Congressional Research Service, *Navy Irregular Warfare and Counterterrorism Operations: Background Issues for Congress* by Ronald O'Rourke. Washington, DC: Congressional Research Service, 2010.
[103] Admiral Eric Olson, USN Commander United States Special Operations Command, on March 1, 2011, to the Senate Armed Services Committee, 112th Cong., 1st sess.
[104] U.S. Congress, House, *National Defense Authorization Act for Fiscal Year 2012*, H.R. 1540. 112th Cong., 1st Sess. (May 17, 2011), Sec 155.

the expertise to US shipyards.[105] The Secretary of Defense authorized the exception to US Code 10USC7309 and delegated the decision to the Commander USSOCOM when he "determines that it is in the national security interest of the United States to do so."[106]

Third, the strategy required USSOCOM to challenge the organizational and bureaucratic status quo with regard to design and engineering oversight and certification. USSOCOM, at the headquarters level, contained the capability for program management and acquisition execution. However, it lacked an equivalent organization of NAVSEA: an organization with resident In-Service Engineering Agencies with technical and engineering expertise as well as design and safety certification authority. It was this certification issue that proved to be the major tension point with the S301.

On March 02, 2011 USSOCOM and NAVSEA concluded an overarching Memorandum of Agreement delineating the specific responsibilities of each party for collaborative efforts on Special Operations Peculiar programs. Specifically, USSOCOM would retain the right to define top-level requirements for DCS and USSOCOM vehicles operated from submarines. With the exception of the follow-on to the MK VIII Mod 1 wet SDV, the Shallow Water Combat Submersible, or SWCS, the program manager would be under USSOCOM. System Certification Authority (SCA) would remain with NAVSEA 07 and Technical Authority with NAVSEA 05. The key point for USSOCOM relative to this study is that

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[105] Author interview with Naval Special Warfare Command Operations Officer, San Diego, February 2011. The code in question is US Title 10, 10USC7309

[106] Gates, Robert M. "Secretary of Defense Memorandum serial OSD 03383-11: Delegation of Authority to Grant Exceptions to the Prohibition in Title 10." (Washington, DC: Department of Defense: Secretary of Defense, 2011).

USSOCOM accepted a compromise position to move forward.[107] NAVSEA retained the authority to certify technical, engineering and safety design for all things operating on or inside a submarine, to include anything that goes inside a DDS. The compromise is the agreement of a system specific tailored Certification Program Plan that is to be evaluated on a case by case basis. Finally, USSOCOM retained the SCA and technical authority for unique systems not interfacing with submarines.[108]

This issue came to a head when USSOCOM tested its undersea strategy and supporting staffing actions and NSW leased the S301, an experimental hybrid submersible built by a British entrepreneur to civilian ABS standards[109] versus US Navy SUBSAFE standards.[110] In June of 2011, the tension elevated and NAVSEA (PEO SUBS) sent a letter to USSOCOM, (PEO-Maritime) outlining issues and risks impacting the deployment of S301 from a DDS. NAVSEA wrote that they view "…deploying and retrieving and S301 or "S301-like" vehicle from a modified DDS as having high technical and personnel risk as well as cost uncertainty.[111] The S301 proceeded through a six-phase testing and assessment

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[107] Author interview with ADM Olson (Ret.), Oct 23, 2011.

[108] Overarching Memorandum of Agreement for Dry Combat Submersible (DCS) Acquisition Programs and Projects, dated 02 March, 2011

[109] American Bureau of Ships is an industry group that provides engineering design and safety certification for companies manufacturing sea going vessels. This certification consist of three basic parts: rules for conditions of classification, rules for materials and welding, and rules for survey after construction. Tim Kelly, phone interview by author, November 26, 2011. Also in Author interviews with Rich Blank and Gard Clark.

[110] For more on SUBSAFE standards, see Naval Sea Systems Command, *P-9290: System Certification Procedures and Criteria for Deep Submergence Systems*, Washington, DC, 1998.

[111] G. J. Clark, "SOF Undersea Mobility Program Office (Pms399) Identification of Risks and Issues Associated with Deployment of Promare S301 Vehicles from Dry Deck Shelters (DDS)," Naval Special Warfare Command Commander, (Washington, DC: Department of the Navy, 2011), 1.

program that consisted of submersible shop trials, pier side trials, surface trials, submerged trials, diver shop trials and diver pier side trials.

PEO SUBS, the flag level supervisory authority for submarine systems within NAVSEA, forwarded the ISEA assessment in June of 2011, roughly a year after its completion and established the official NAVEA position that "deploying and retrieving an S301 or "S301 like" vehicle from a modified DDS as having high technical and personal risk as well as cost uncertainty."[112] NAVSEA's risk assessment equated the identified technical hurdles of the S301 prototype platform and the current DDS configuration and took the bureaucratic position that they would introduce high risk into future platforms.

NAVSEA's bureaucratic position was not sufficient to deter NSW despite NAVSEA's objections. As previously mentioned, USSOCOM announced a new undersea strategy and sponsored a NAVSEA conducted a DCS industry day and released a Broad Area Announcement, or BAA, announcing USSOCOM's intention to develop and procure a DCS nested within the new USSOCOM undersea strategy that would employ a S301-like concept of transporting a DCS inside the protective structure of the DDS.[113] This concept includes two sizes, light and medium. The later includes an option to operate from something other than the submarine. Also include are programs to modify the current DDS as well as develop and procure a new larger DDS.[114]

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[112] G. J. Clark, "SOF Undersea Mobility Program Office (Pms399) Identification of Risks and Issues Associated with Deployment of Promare S301 Vehicles from Dry Deck Shelters (DDS)," Naval Special Warfare Command Commander, (Washington, DC: Department of the Navy, 2011).
[113] USSOCOM. "DCS Industry Day Brief." USSOCOM, PowerPoint Presentation, 2010.
[114] Author interview with John Green.

Summary

In this chapter, the requirement and acquisition processes were summarized to provide context for USSOCOM's development and acquisition of a Dry Combatant Submersible capability. Then the relevant history surrounding the US Navy's ability to introduce a Dry Combatant Submersible into the US force structure was presented to establish a basis of comparison for addressing the principal research question, the ability of USSOCOM to develop and procure Special Operations Peculiar equipment. After the historically relevant and organizational and bureaucratic context was described, the stories of the development of the three platforms that make up the complete data set of programs related to this study were presented, the actors identified and their actions described. That story documented an operational requirement that led to a long and drawn-out science experiment that in the end was well over budget, delivered late, and did not perform up to expectations. It is a story of organizational and bureaucratic conflict and an illustration of USSOCOM's dogged determination to fulfill a validated capability gap.

In the next chapter, the story of these three platforms and the actions taken by the actors involved will be analyzed along four lines. First, Resource Based Theory introduced in Chapter 2 will be applied to the undersea components of both the US Navy and USSOCOM in order to determine the distinct competencies of each service and analytically determine the basis of organizational differentiation and bureaucratic imperative in the Joint Requirements and

Acquisition processes. Second, the process tracing methodology will be employed to identify the impact of each actor’s actions on USSOCOM’s ability to develop and procure Special Operations Peculiar equipment in support of the principal research questions. Third, the relationships between the elements of the defense establishment after the introduction of USSOCOM will be analyzed as viewed through this case. And finally, the general theme of innovation as described in Chapter 2 will be discussed.

Chapter Four: Case Study Analysis

Introduction

The preceding chapter, Chapter Three, discussed the history of the three platforms that make up the dry combatant submersible capability: the ASDS, the JMMS and the S301. Despite a legacy of technical and performance problems, cost overruns, schedule delays, and intervention by stakeholders endogenous to and exogenous of DoD, USSOCOM maintained its quest to develop and procure a dry combatant submersible capability.

This chapter, Chapter Four, uses the case study history developed in Chapter Three to test Resource Based Theory's ability to explain this study's two fundamental research questions. First, how has the United States Special Operations Command leveraged its unique authority to influence the Department of Defense to develop and procure special operations-peculiar equipment? Second, how, when and why do the US Congress and industry intervene in the United States Special Operations Command procurement process?

One of the key findings in this chapter is that although Resource Based Theory analysis identifies distinctive competencies that should lead to competition between service components, USSOCOM and the US Navy cooperated. The explanation for this cooperation lies within the concept of linked competencies, that is, distinctive competencies that are shared by both service components and that are mutually supporting. However, this cooperation has a limit. Additional key findings in this chapter are that high-level objectives drive prioritization of effort and action by key stakeholders and that critical success factors serve as the key indicator for senior stakeholder cooperation or competition.

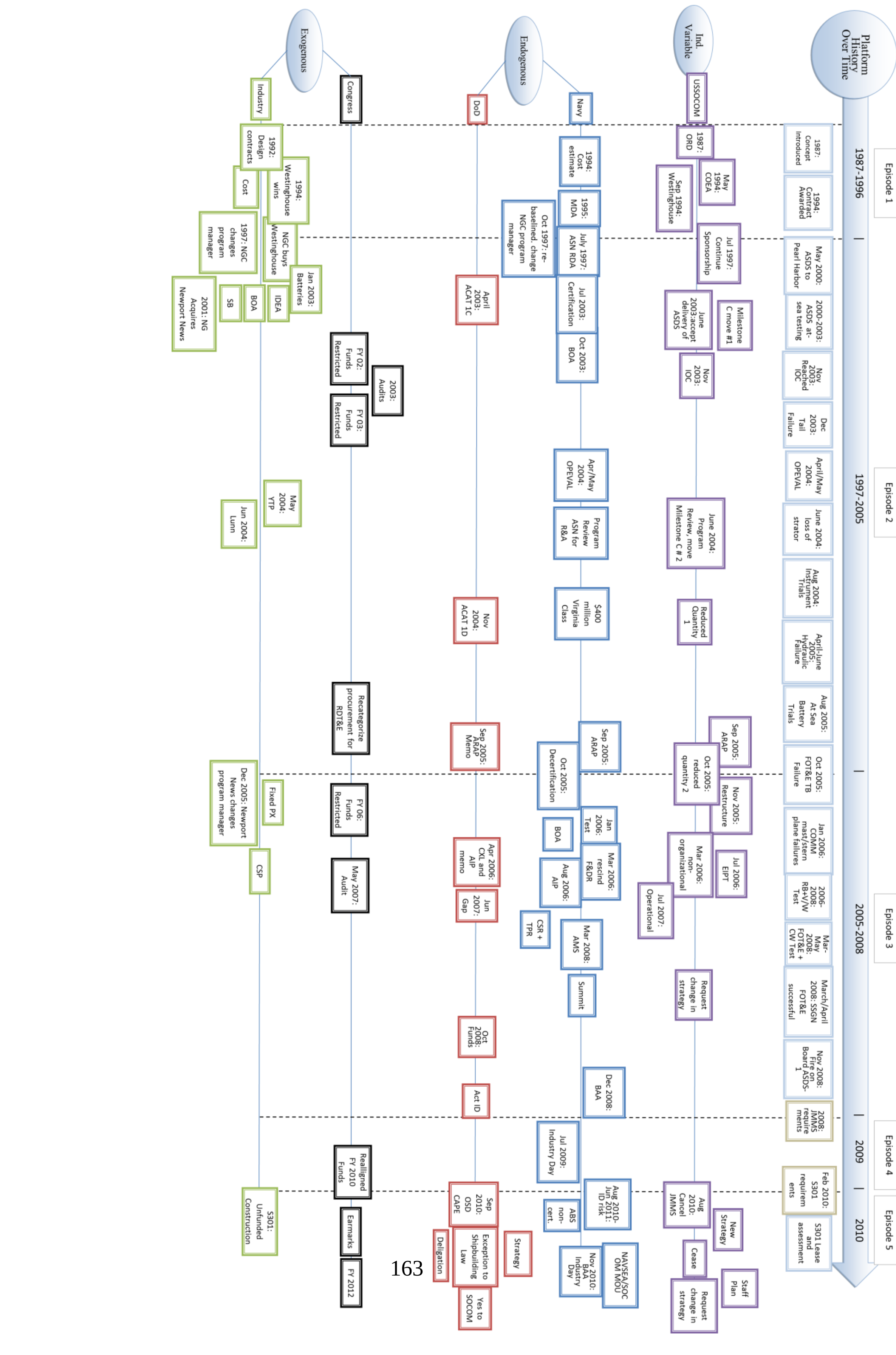
This chapter begins with an assessment of the key turning points, or inflection points, in this case study and identifies the key actions and roles played by the individual actors. Next, the chapter applies Resource Based Theory to the undersea components of both USSOCOM and the US Navy to identify distinct competencies that drive organizational and bureaucratic imperatives and actions for both organizations. Then the chapter recounts, through the process tracing methodology, the actions of the actors that make up the defense establishment in relation to either RBT or established literature for organizational and bureaucratic action. The chapter also discusses the relationships between actors in the defense establishment. Finally, Chapter Four addresses the issue of how and when innovation occurs within the case study.

Key "Inflection Points" in the Dry Combatant Submersible's History

The illustration below shows the history of the platform and the action of the actors both endogenous to and exogenous to the Department of Defense. It also captures the principal inflection points—points where events or decisions changed the focus, scale, and scope of the program or where decision makers chose to continue or discontinue platforms.

Key events, or inflection points, are identified by focusing on the history of the platform itself, represented on the top line in light blue, and the actions of USSOCOM, the independent variable on the second line in purple. The actors endogenous to DoD are represented in the following two lines. The Navy is identified with the blue process boxes, and the DoD by the red process boxes. The actors exogenous to DoD are grouped in the bottom two lines. The black process boxes represent Congress, and the green represent private industry. The chart tracks who, what, and when of the story and captures the principal inflection points in five episodes. These principal episodes are extracted from the in-depth history of the DCS capability described throughout this chapter.

Figure 12: Major inflection points of this case study.



In 1987 during the first phase of the program, USSOCOM's newly created Naval Special Warfare Component conceived of the Advanced SEAL Delivery System concept and USSOCOM awarded the contract in 1994 to the lowest bidder. During the initial Technological Development Phase, ASDS was delivered late, over budget, did not meet specifications, and recommended for cancellation by the US Navy, a recommendation USSOCOM did not accept.

In the second phase, ASDS's Manufacturing and Engineering Development Phase, ASDS suffered repeated operational and test failures and delays from 2003-2005. NAVSEA eventually ended this second phase when it decertified ASDS in October of 2005 after a Thrust Bearing failure[1] during the Fielding and Operational Test and Evaluation of the platform prior to Milestone C.[2]

During its third phase, USSOCOM maintained its commitment to the program, and after completing a congressionally funded and DoD-mandated Reliability Improvement Program and a renegotiation of the contract, ASDS was brought back to operational status. However, ASDS suffered a program-ending fire in its innovative lithium ion battery in November of 2008.

In its fourth phase, USSOCOM cancelled the program and redirected the effort to the JMMS, the second platform in the story. The JMMS story is

[1] The thrust bearing in marine applications sits between the shaft and the thrust block, or the piece that sits at the end of the shaft that absorbs the thrust created by the propeller as it pushes against the water to drive the ship forward.
[2] Milestone C is the decision point at which the government commits to buy something. See Bradford Brown, *Introduction to Defense Acquisition Management* (Fort Belvoir, VA: Defense Acquisition University Press, 2010).

short and serves as the transition platform for the USSOCOM's quest to develop the Dry Combatant Submersible capability. Attempting to leverage the lessons learned from the ASDS, USSOCOM successfully moved the program through Milestone A in 2009. After intervention from both Congress and multiple actors within DoD, USSOCOM cancelled the JMMS program prior to Milestone B[3] due to cost constraints and in the context of a slow but steady development of alternatives outside the principal submarine industrial base.

In the final phase, USSOCOM re-introduced the requirement for the DCS within a broad and innovative undersea strategy that encompassed both wet and dry combatant submersibles and the dry dock shelter from which they would operate.[4] USSOCOM exercised its authorities and organizational position to access the senior political leadership and put in place the new strategy, and in the process challenged the prevailing authority and structure endogenous to DoD surrounding engineering design and safety certification of undersea military capabilities. To this effect, a milestone decision B was made and an operational prototype was leased and assessed.

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[3] Milestone B is the point at which a prototype can be fabricated.

[4] Note that in Chapter Three, the DCS capability was articulated and illustrated relative to the capabilities of the wet SDV and in the context of Special Operations-peculiar undersea mobility capability. For the purposes of this study, the concept was developed using the Office of Naval Research declassified study on Underwater Swimmers. See Naval Operations Support Group Pacific, Research, Development, Test, and Evaluation Department, A Review of Combat Swimmer Delivery Vehicle Development (U) 1939-1967, Edited by Lawrence G. Body. Operational Report (Naval Operations Support Group Pacific, 1967).

Resource Based Theory

Resource Based Theory (RBT), described in detail in Chapter Two, is applied in this chapter to two of the key actors; first, Naval Special Warfare, USSOCOM's maritime component for undersea forces; second, the Submarine Force, the Navy's component for undersea forces.

Resource Based Theory allows us to derive their core competencies by mapping Naval Special Warfare's and the Submarine Force's distinctive competencies and basis of organizational differentiation.[5] Even when these two organizations have distinctive competencies that should dictate that they pursue a path of differentiation and *competition* for the allocation of resources, this study examines whether they can serve as the basis for *cooperation* between USSOCOM and the US Navy, the parent organizations of the undersea components that are members of the defense establishment with the responsibility, authority and resources to develop maritime undersea capabilities.

This assessment is the first of its kind for Naval Special Warfare and the Submarine Force, the first to compare the two forces' distinctive competencies, and the first to apply Resource Based Theory to the question of whether distinctive competencies lead to cooperation or competition across military

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[5] John M. Bryon, Fran Ackerman, and Colin Eden, "Putting the Resource-Based View of Strategy and Distinctive Competencies to Work in Public Organizations," Public Administration Review 67, no. 4 (July/August 2007): 704. Also see Mark J. Kroll, and Charles D. Pringle. "Why Trafalgar Was Won before It Was Fought: Lessons from Resource-Based Theory." Academy of Management Executive 11, no. 4 (1997): 73-89. Also see Fran Ackerman and C. Eden, "Mapping Distinctive Competencies: A Systematic Approach," *The Journal of Operational Research Society* 51, no. 2 (Jan 2000): 12-20. Also see Matthew S. Kraatz and Edward J. Zajac, "How Organizational Resources Affect Strategic Change and Performance in Turbulent Environments: Theory and Evidence," *Organization Science* 12, no. 5 (Sep-Oct 2001): 632-657.

service lines, in this case the Navy. The implication is the line that distinguishes service common and special operations-peculiar equipment and hence whether or not it is funded by Major Force Program 11.

To briefly review, the RBT framework in the context of this study is employed to derive the distinctive competencies of both undersea military organizations and the essential reason why the government created them. These Distinctive Competencies (DC) (a) are difficult to replicate, (b) differentiate an organization, and (c) are the source of the organization's competitive advantage and long term success. They are necessary for the military organization to fulfill its Mission, assigned in this case by either USSOCOM or the Navy, and the Higher Level Objectives (HLO) of the various stakeholders within the defense establishment. These HLOs identify the utility of the capability from the perspective of the individual stakeholders and signal each stakeholder's priority.

In this case the stakeholders are USSOCOM, the Unified Geographic Combatant Commander (GCC), the Navy, the NSW component to USSOCOM and the Navy, DoD, Congress, and private industry. The defense establishment stakeholders evaluate the capability through Critical Success Factors (CSF), performance parameters that the capability must meet to maintain support for the organization from its stakeholders.

Distinctive Competencies (DC) are developed from a broader range of Competencies (C), a range of skills and functions that the military organization performs to complete its mission. The foundation on which these competencies are built is a mix of tangible and intangible Resources (R) that the organization leverages to achieve its mission. Resources are broadly understood to be "any assets that an organization might draw on to help it achieve its [mission]"[6] and have basic attributes of being rare, valuable, non-imitable and non-substitutable. For this study, they are grouped into physical, human and organizational categories. The organizational resource is particularly pertinent for this study because the principal research question specifically addresses the impact of the new USSOCOM organization, with its unique resources, on the defense establishment.

Naval Special Warfare, Dry Combatant Submersible and RBT

The NSW Dry Combatant Submersible undersea mobility capability RBT mapping diagram in the figure below illustrates the connection between resources and the attributes of RBT as it relates to Naval Special Warfare. The mission for NSW undersea organizations is to provide the premier maritime undersea mobility capability for US Special Operations Forces. The top line depicts the high-level objectives of the stakeholders within the defense establishment with their perspective on the ultimate purpose of the DCS. Seven stakeholders are identified amongst those who develop, build and fund, as well as those who employ the capability. In this case, the stakeholders are USSOCOM, Naval Special Warfare, the US Navy, the Geographic Combatant Commander, the Department of Defense, the US Congress and private industry and are listed in the diagram from left to right.

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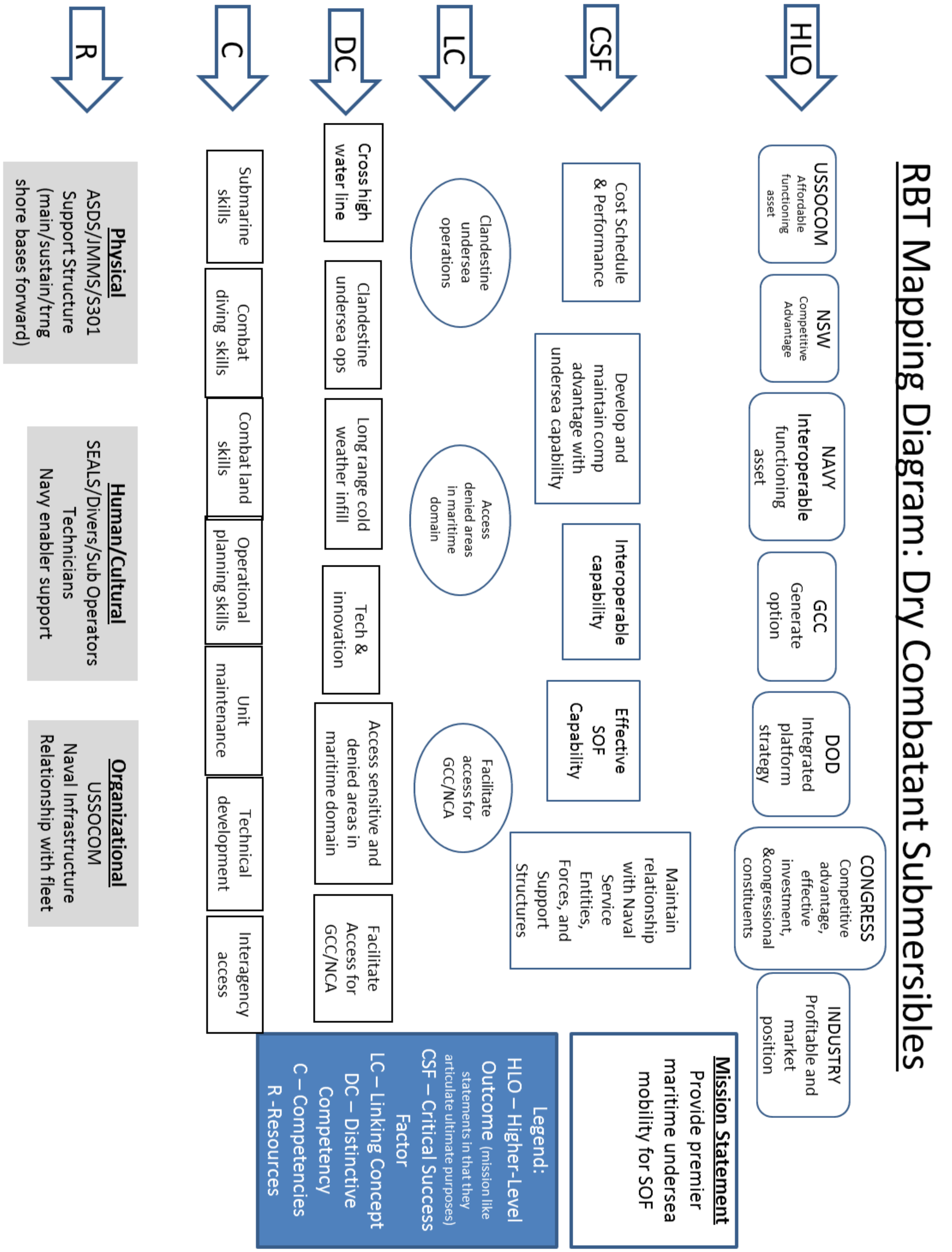
[6] Bryon, et al, "Putting the Resource-Based View of Strategy and Distinctive Competencies to Work in Public Organizations," 704.

Figure 13: RBT Mapping Diagram: Dry Combatant Submersibles



Higher-Level Outcome

The first line of analysis shows the Higher Level Outcome (HLO), which is usually described as the principal interest of a stakeholder in the capability. In the case of the DCS, USSOCOM holds Combatant Command of Naval Special Warfare and has tasked Naval Special Warfare with the mission to provide the premier maritime undersea mobility capability for SOF.[7] USSOCOM's Higher Level Objective (HLO) is to provide *a functioning asset that is both peculiar to SOF requirements and affordable.*

As discussed in Chapter Two, Naval Special Warfare has a specialized role in which it is both the maritime Component Commander to USSOCOM and the Special Warfare Type Commander for the Navy. As such, its HLO is *to acquire a platform that provides its forces an enduring source of competitive advantage over their adversaries.* The third stakeholder, the US Navy, is interested in a functioning asset that is *interoperable with yet does not risk other Naval platforms.*

In contrast, the Geographic Combatant Commander's HLO is *a capability that would generate a course of action or an operational option for his employment of SOF.* DoD's HLO is complex, but can be narrowed to *a functioning asset that provides a competitive advantage for SOF for an affordable price without disturbing the larger DoD acquisition strategy and drive for innovation.*

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[7] "USSOCOM Directive 10-1: Terms of Reference – Roles, Missions, and functions of component commands," United States Special Operations Command, Tampa, FL: December 15, 2009.

Meanwhile, external to DoD, Congress's HLO focuses around *an asset for maritime SOF that provides the best possible capability at an affordable cost while providing opportunities to assist constituencies with the program.* Finally, industry's HLO is to *capture and structure the contract so that it is profitable with minimal risk* that maintains or improves its market position relative to its competitors.

Critical Success Factor

The next line of the diagram presents the Critical Success Factors (CSF) that the stakeholders use to determine whether their HLOs are being met. For the most part, the CSFs are shared by most of the stakeholders. For example, *the development and maintenance of a competitive advantage in undersea capability* is a CSF common to all stakeholders. A closely related CSF *is the integration of the capability into successful operational performance and capacity to meet the envisioned operational concept.* Finally, *the ability of the program to meet cost, schedule and performance* is a CSF shared by all.

However, at this point, differing performance factors become important. USSOCOM, the program sponsor, and the US Congress share the CSF of *developing and sponsoring Special Operations-peculiar capabilities*. At the same time, it should be noted that Congress defined the scope of USSOCOM's authority and the programmatic means to exercise the authority in legislation. USSOCOM, Navy, DoD, Congress and NSW all share the critical success factor of *broadening the industrial base to spur innovation* and reduce the bargaining position of individual industry components, albeit with varying levels of concern. Finally, USSOCOM, Navy, and NSW share the CSF of a *strong relationship between service Type Commanders, or TYCOMS*[8]*, and their components.*

Resources

Now that the mission of the NSW undersea component force, the higher-level objectives and critical success factors of the stakeholders in the defense establishment have been identified, the focus can shift to the resources foundation of the RBT framework. From these resources, competencies and distinctive competencies unique to the NSW undersea component force and necessary to accomplish its assigned mission are derived. Tangible and intangible resources are grouped into *physical, human* and *organizational resources* categories to enable analysis.

The *physical resources* of the NSW undersea component force consisted of the three DCS platforms used in this case study: the ASDS, JMMS, and S301. Additionally, the physical infrastructure and related support assets and material to perform maintenance, training, and sustainment of DCS operations are leveraged to create competencies. These resources are resident in the various commands and sub-organizations that are assigned to and report to NSW as its echelon two

[8] Navy Type Commanders, or TYCOMS, are in the administrative chain of command, vice the operational chain of command that leads one of the four combatant portion of the naval service grouped by similar capabilities. They are Naval Surface Forces, Naval Air Forces, Naval Submarine Forces and Naval Special Warfare Forces. For the purposes of this study, it is the officer given the responsibility for conceptualizing operating concepts, developing doctrine, setting training standards, articulating operational requirements, and submitting budget requests and executing budget allocations.

commander. Finally, NSW undersea forces accessed facilities at forward deployed NSW Units.

The *human resources* of the NSW undersea component force consisted of personnel with multiple skill sets and from varying sources. First, there were the qualified SEAL operators who had undergone advanced and specialized SDV training. They served as mission commanders and operators who planned and executed operations and provide the source of the organizational culture. To support operations, Navy Sailors provided technical and enabling combat service support to the NSW command structure. These sailors included Navy Divers who operated and maintained the supporting diving systems, nuclear-trained submarine-qualified officers who piloted and planned ASDS activities and were instrumental in platform scheduling and maintenance. Finally, fleet sailors and Navy civilian employees with the technical and administrative skills performed functional tasks that supported operations, and onsite contractors rebuilt ASDS or tested the S301.

The *organizational resources* of NSW centered on its position as a subordinate command under USSOCOM, which is the Unified Combatant Commander of all US-based SOF. Subordination to USSOCOM provided access to USSOCOM's unique authorities. Germane to this study are USSOCOM's acquisition, program management, and Planning Programming Budgeting and Execution (PPBE) authorities and structure. Embedded within this structure is the authority to validate operational concepts and interact with the Joint Force. Additionally, USSOCOM's unique relationships with other agencies of the government broaden its strategic perspective. Finally, the Naval Special Warfare Command executes Administrative Command as a Navy Type Commander, a service-based authority, a position that advocates for access to the fleet infrastructure. Specifically, the Naval Sea Systems Command, with their In Service Engineering Agencies, and the Submarine Force, is the component that provides strategic and operational mobility and maneuver for NSW undersea forces.

Competencies

From these resources, a series of competencies are divided into two categories, *operational* and *enabling* support. Operational competencies include submarine, combat diving, land combat, and operational planning skills. These skills are fundamental to Special Operations in the undersea environment and to DCS operations in particular. In the enabling support category, general maintenance at the unit and depot level includes controlled maintenance work skills that are applied in scope of certification and life support systems.[9] Two competencies derive out of NSW undersea organizational connection to USSOCOM and the strategic utility of SOF;[10] first, an established mechanism for

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[9] Planned Maintenance System is the Navy's scheduled maintenance plan for all material. Scope of Certification is defined as "those systems, subsystems, and components and the associated maintenance and operational procedures required to provide maximum reasonable assurance that DSS personnel are not imperiled during system operations." Controlled work is work that can only be performed by a skilled individual with a specific certification. See Naval Sea Systems Command, *P-9290: System Certification Procedures and Criteria for Deep Submergence Systems*, Washington, DC, 1998. These skills differentiate NSW undersea operations from straight SEAL operations.

[10] SOF's major two claims on strategic utility are to expand choice and serve as an economy of force option. SOF performs functions other military instruments do not

tactical units to access operational and strategic requirements originating from other government agencies representing other instruments of power. And second, NSW undersea forces contain a technical development competency necessary to develop solutions for either improving the capacity of the undersea platforms or for deriving a technical solution to a unique problem.

Distinctive Competencies

Finally, this process allows us to determine the distinctive competencies of Naval Special Warfare's undersea forces. This is the key point that allows us to compare Naval Special Warfare with the Submarine force and ask *whether these lead to competition or cooperation.*

Distinctive Competencies are drawn from the basic skill sets or competencies present in various organizations. The organization synergizes combinations of competencies through internal feedback loops into more specific, refined, or unique competencies that contain the fundamental RBT attributes of rare, valuable, non-substitutable and relatively non-imitable. These distinct competencies serve as the basis for differentiation between organizations in the public domain. They are also the source of friction and competition for allocation and distribution of appropriated funds.

Five DCs are identified in the case of NSW undersea forces that are derived from the basic set of competencies. *Clandestine undersea operations in shallow water and the ability to cross the high water line tactically from an*

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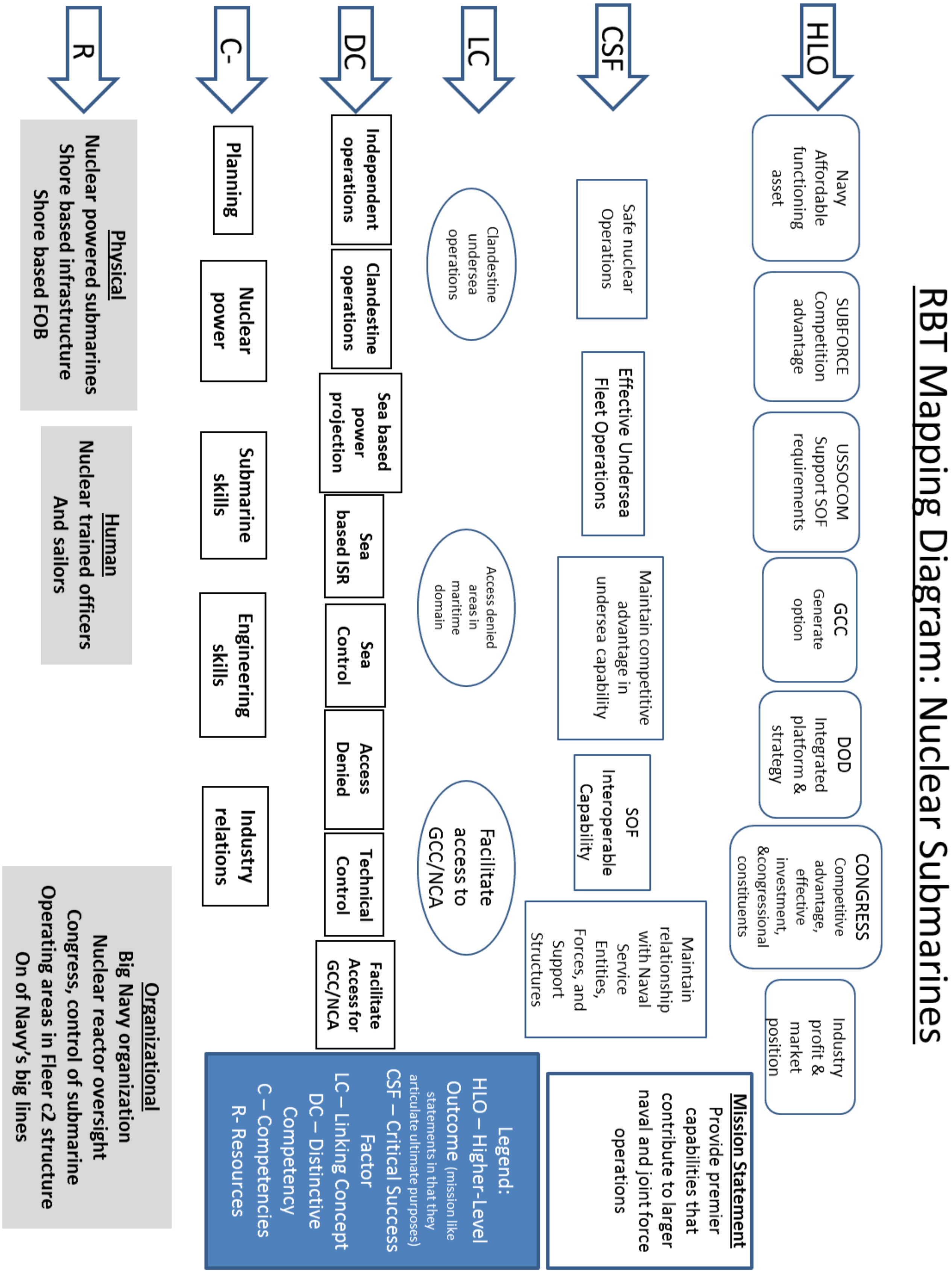
perform or that lie outside the routine tasks of war. See Gray, *Explorations in Strategy*; Kiras, *Special Operations*; and Sass, "Finding the Right Balance."

undersea position are essential capabilities of NSW forces as a whole. Combining the human resources of SEALs and divers with the combat diving, land combat and operational planning skills provided through USSOCOM's organizational structure, combined with the physical resource of the combatant submersible in a *feedback loop* creates the *distinct capability of clandestinely approaching a beach landing site and crossing the high water line.* The ability to extend the operational range beyond the normal range of a swimmer is shared with the free-flooding wet combatant submersible or SDV. However, extended long-range cold water mobility is unique to the DCS. This capability provides the ability to access sensitive and denied areas in a maritime domain. Finally, the technological development capability is used to develop solutions to fill NSW undersea forces' operational requirements and in the process has developed a DC of technological and tactical innovation.

Navy Submarine Force, Nuclear Submarine and RBT

The Submarine Forces mapping diagram in the figure below illustrates the connection between resources and the attributes of RBT. The mission for Submarine Force is to *provide the premier undersea capabilitie*s, which provides a competitive advantage for the submarine force against its enemies while it contributes to the larger Naval operating concept. The top line depicts the high-level objectives of the stakeholders within the defense establishment or their perspective on the ultimate purpose of the submarine platforms. Seven stakeholders are again identified amongst those who develop, build and fund the capability as well as those who employ them. In this case, the stakeholders are the US Navy, the Submarine Force, USSOCOM, the Geographic Combatant Commander, the Department of Defense, the US Congress and private industry.

Figure 14: RBT Mapping Diagram: Nuclear Submarines



Higher-Level Outcome

The top line, as with the previous NSW example, captures the Higher Level of analysis. However, in this case, the Navy tasked its submarine force to provide the premier undersea capability that integrates with the Naval Operating Concept. The Navy's HLO is *a functioning asset that is affordable* to the point at which the numbers of hulls provide the right scale necessary to meet anticipated requirements.[11] The Submarine Force's, the Navy's Submarine Warfare Type Commander, HLO is *to acquire a premier undersea capability that provides its forces an enduring source of competitive advantage* over their adversaries. In comparison, USSOCOM's HLO is to acquire a *functioning asset that accommodate SOF-peculiar platforms and meet SOF operational requirements.* However, the Geographic Combatant Commander's HLO is a capability that would *generate a course of action or operational option* for his employment of Submarines that leverages the platform.

DoD's HLO is complex, but can be narrowed to *a functioning asset at the right scale that provides a competitive advantage for the Naval Service* whose capabilities integrates with the rest of the Joint Force and supports the Joint Force Operating Concepts for an affordable price that adheres to the larger DoD acquisition strategy. Meanwhile, external to DoD, Congress's HLO focuses on *an affordable and functioning asset* for Naval Forces whose construction presents opportunities to assist constituencies with the program. Finally, industry's HLO is to capture and structure the contract so that it is *profitable with minimal risk,*

[11] US Navy, *Naval Operations Concept 2010 – Implementing the Maritime Strategy*. (Washington, DC: Department of the Navy: 2010).

leverages existing infrastructure and proprietary designs, and maintain or improve its market position regardless of tier.

Critical Success Factor

The next line of the diagram presents the CSFs the stakeholders will use to determine whether their HLOs are being met. For the most part, the CSFs are shared by most of the stakeholders. For example, *the maintenance of a competitive advantage* in undersea capability is a CSF common to all stakeholders. Also shared by all stakeholders are the general CSFs of *safe nuclear reactor operations and successful undersea operational ability* across all platforms and the capacity to meet the envisioned operational requirement.

However, at this point, differing CSFs come into the picture. USSOCOM shares the CSF *of ensuring SOF requirements are accommodated* with Congress.[12] Congress defined the scope of USSOCOM's authority and the programmatic means to exercise the authority in legislation. USSOCOM, Navy, Submarine Forces and NSW share the CSF of *a strong relationship between service TYCOMS and their components*. Finally, industry's HLO is to *leverage its infrastructure assets and profitably build submarines*.

[12] The Navy spent roughly $400 million on Virginia class and SSGN host-ship support systems for ASDS and JMMS. See "Memorandum for the Record: Development of a Way Forward for the Advanced SEAL Delivery System (ASDS)," April 24, 2008. Office of the Special Assistant for Undersea Strategy, Office of the Secretary of the Navy. Washington, DC. Also confirmed by Author interview with Bill Hicks, Honolulu, HI, September 9, 2010. Mr. Hicks is the deputy operations officer COMSUBPAC.

Resources

With the mission of the Submarine Force and the higher-level objectives and critical success factors of the stakeholders in the defense establishment identified, we shift again to the resources foundation of the RBT framework. From these resources, competencies and distinctive competencies unique to the Navy's Submarine Force component that are necessary to accomplish its assigned mission are derived. Tangible and intangible resources have been again been grouped into physical, human and organizational resources categories consistent with defense structure to enable analysis.

The *physical resources* of the Navy's Submarine Force component consisted of nuclear-powered fast-attack submarines and SSGNs. Additionally the physical infrastructure and related support assets and material to perform maintenance, training, resupply and sustainment of SSN operations are leveraged to create competencies. Finally, the Submarine Forces accessed facilities at forward-deployed shore-based bases and facilities.

The *human resources* of the Submarine Force component consist of military and civilian personnel. The cultural tenor of the organization is grounded in engineering. All submarine officers are nuclear trained, as is a strong contingent of enlisted personnel. The overarching priority for safe nuclear reactor operations is the "thing does not go boom!" Moreover, putting a machine underwater and operating it indefinitely requires a certain amount of technical acumen and adherence to procedure for success. The shore-based infrastructure necessary to maintain the platforms require an approach based on technical rigor and controlled work. This falls within the platform's Scope of Certifications in accordance with the overall NAVSEA directed SUBSAFE procedural construct that is designed to ensure that unintended engineering design or operational mistakes do not become the root cause of another submarine from across the fleet being lost at sea.[13] The culture and procedures extend to both underway operations and shore-based maintenance activity by civilian personnel.

The *organizational resources* of the Submarine Force center on its position as the undersea component of the Naval Forces, or TYPE Command. They are different than other type commands from an organizational perspective because a submarine officer holds the position of Navy Nuclear Reactors, a four star position with a ten-year term as dictated in legislation. As such, the submarine forces have a unique organizational position within the Naval service and a special relationship with Congress. Also, as a naval component, they have access to the global naval shore-based infrastructure such as NAVSEA's technical oversight and In Service Engineering Service Agencies (ISEA), and an acquisition organization with capabilities designed to develop, build, buy, and maintain an entire fleet. As one of the Navy's three big combat arms lines, they hold great influence at NAVSEA. Conversely, they are subject to the Navy's operational concept and resource prioritization decisions. However, since a submarine officer of four star rank always holds senior leadership positions of the

[13] RADM William Hilardes, phone interview by Author, November 2, 2011.

Navy, the Submarine component always has a venue to defend bureaucratic agendas.[14]

Competencies

From these resources, a series of competencies are developed, roughly divided into two categories as with NSW depicted earlier: *operational* and *enabling* support as depicted in the diagram. However, in the case of the submarine force, the competencies are more weighted towards engineering competencies. *Operational competencies* include submarine and operational planning skills, which are fundamental to naval operations in the undersea environment. The *enabling support* category fits largely into the organizational context. General and controlled maintenance planning and work skills top the list and are applied in nuclear reactors. In addition, scope of certification and life support systems at the unit level are fundamental to submarine force competencies and culture since they serve as the foundation for the submarine force's ability to develop technologically innovative concepts.[15]

Submarine Forces also have a close relationship with NAVSEA, the independent Navy organization that certifies the technological soundness and safety of the technological innovations. These innovations enable the submarine force to improve the capability of the submarine platforms, to apply technological

[14] An example of this influence within the Naval service is understood with the concept of service culture and rank, the principal determinants of an official relationship between individuals. Officers of the same rank can access each other and can bypass staff protocol and procedures.

[15] These skills in part differentiate NSW undersea operations from straight SEAL operations.

solutions across the entire fleet, or to employ technology from the submarine. Finally, *the cultural bias towards engineering and technical rigor* is pervasive across the Submarine Force and serves as a fundamental building block for submarine force competencies.

Distinctive Competencies

Distinctive competencies are drawn from the basic skill sets or competencies present in various organizations. The organization synergizes combinations of competencies through *feedback loops* into more specific, refined, or unique competencies that contain the fundamental RBT attributes of rare, valuable, non-substitutable and relatively non-imitable. These distinct competencies serve as the basis for differentiation between organizations in the public domain. They are also the source of friction and competition for allocation and distribution of appropriated funds.

Five DCs that are derived from the basic set of competencies are identified in the case of Submarine Forces. The physical presence of a nuclear reactor on the submarine platform combined with the *feedback loop* that includes human resources of nuclear trained officers with strong engineering and submarine skills produces the distinct capability of long range and independent operations. *Clandestine undersea operations in deep blue and the littoral region* are a direct result of an application of submarine capabilities, as is the distinct competency to access denied waters. Additional tactical roles that fill the DC category when applying the submarine force to the problem: sea based power projection, sea control, and sea based ISR. Finally, the synergy produced by the combination of its engineering skills and organizational control that supports the critical success factor of safe nuclear operations drives a distinct competency for maintaining technical control during operations at sea and activities pier side.

Linked Competencies: An Analysis of Naval Special Warfare and Submarine Forces

The Resource Based Theory concept for both the NSW and Submarine Force has been deconstructed and mapped. Now, three Distinctive Competencies derived from different resource combinations and created through feedback loops to achieve different organizational goals and missions will serve as mechanisms that link the NSW undersea forces and the Submarine Force to cooperate and enhance each organization's ability to fulfill its critical success factors and achieve its mission. Although they may serve as the basis for *cooperation*, they certainly serve as the basis for organizational imperative and bureaucratic *competition* within the defense establishment because they are the differentiating attributes of each respective organization and must be preserved.

Clandestine undersea operations are the first distinct competency that links both forces and it is differentiated by environment and purpose. The environment differentiates with water depth and range from a base of operation. The purpose differentiates with the tactical objective. In the case of NSW, SEALs cross the beach and high water to go ashore and conduct tactical Special Operations. In the case of the Submarine Force, submarines operate at sea or in the littoral to perform naval functions focused on sea based ISR, power projection or sea control. The linked competency allows both forces to mutually support and extend the reach of the other in support of the operational commander. For example, SOF operates ashore after launching from a submarine, reports indications and warnings or targets information for follow-up naval and joint military action.

Figure 15: RBT Mapping Diagram: Dry Combatant Submersibles

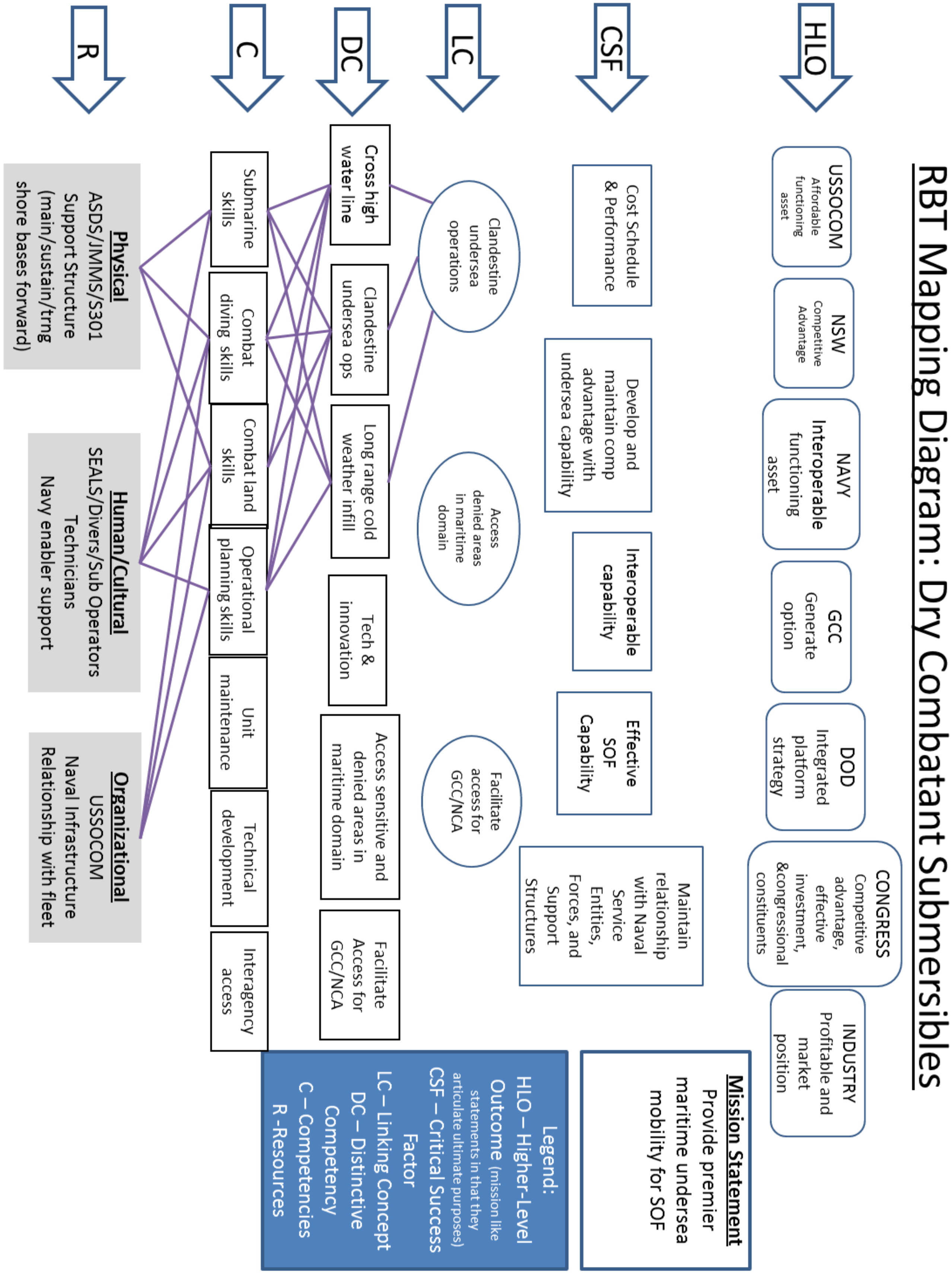
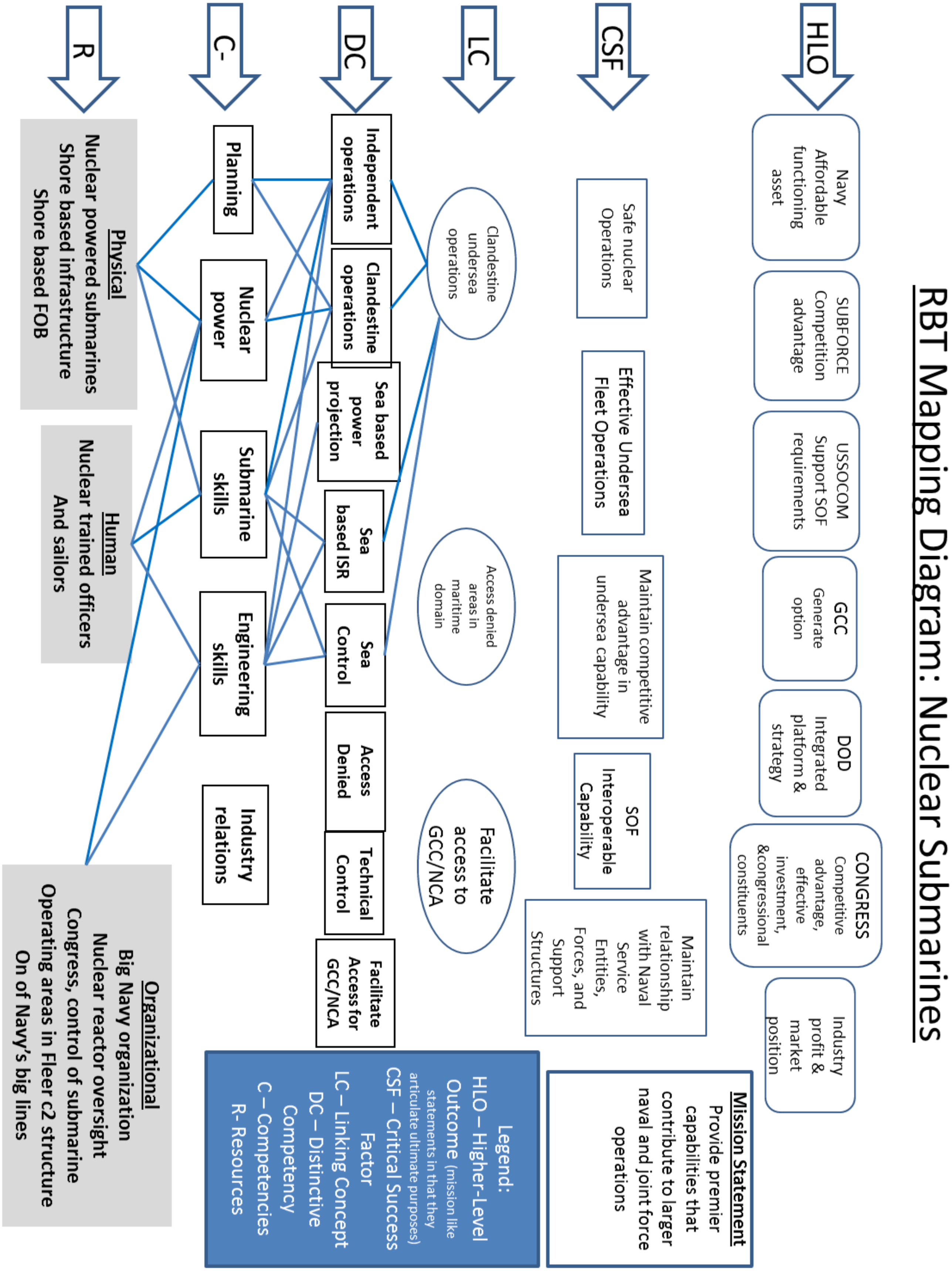


Figure 16: RBT Mapping Diagram: Nuclear Submarines



Second and closely related is *the ability to leverage the clandestine undersea distinctive competencies and generate access to denied areas in the maritime domain*. Unlike other naval or SOF mobility capabilities, the submarine and the Dry Combatant Submersible remain completely clandestine because they operate below the surface of the water. Again, the environment and the tactical objective differentiate the capability of the two undersea forces. The Dry Combatant Submersibles provide clandestine mobility for the insertion and extraction of SOF, and submarines contribute to larger naval and joint military operations.

Finally, the third linked competency is generated by the first two. The mutually supporting operations of the Dry Combatant Submersible and the submarine create the most *clandestine maritime capability with unlimited strategic reach and endurance* in the US arsenal. Together, they generate options to solve sensitive problems at the theater-strategic and at the national strategic policy levels in support of the Geographic Combatant Commander. This option can involve a course of action that precludes sending large joint or naval task forces such as a carrier battle group or large land forces to support diplomacy and deter or compel another state into action. Instead, the linked competency can create a low visibility option that remains out of the public eye of either domestic or international audiences, but supports diplomacy with action that shapes the strategic environment in support of the more visible tools of statecraft.

Resource Based Theory, Organizational Imperative and Bureaucratic Action

This study tests whether RBT can explain USSOCOM's ability to develop and procure the DCS and hypothesizes that the distinct competencies shared by the undersea components of USSOCOM's Naval Special Warfare and the Navy's Submarine Force, called Linked Competencies, would drive cooperation between USSOCOM and the US Navy during the development and procurement of the DCS and the allocation of scarce resources. The three Linked Competencies under discussion are first, *the ability to conduct clandestine undersea operations* that, unlike other components, can second; *access denied areas in the maritime domain* and consequently third, *generate options for the Geographic Combatant Commander and the National Command Authority.* Naval Special Warfare and the Submarine Force, two of the Naval Service's Echelon Two commanders, share these three distinctive competencies that full fill the Critical Success Factors, support the High Level Objectives of both USSOCOM and the US Navy and should inform organizational position and bureaucratic action.

However, the story of the development and procurement of the three platforms involved in the DCS case described in Chapter Three *does not, on the surface, appear to reflect this cooperation through all of the five phases of the case study*. The linked competency based cooperation is evident in phases one through phase three of the case study. Cooperation is seen through the point where both USSOCOM and the Navy cooperate to fix and build one ASDS correctly. Moreover, Navy dedicated $400M in MFP-2 funds to build into both the SSGN and Virginia class submarines, the intended host platforms for both the ASDS and later JMMS. Cooperation between the NSW and the Submarine Force is also seen during phase three, with the repeated operational successes and failures of the ASDS, in the form of schedule availability of the submarine and NSW tactical platforms, allocation of training time, maintenance availability, personnel detailing and other In-Port routines.

Although the linked competencies appear necessary, they were not sufficient to explain the outcome of the case study through phases four and five. Instead, the High Level Objectives of the stakeholders *were more important* in explaining the outcome of events in phases four and five of the case studies. Linked competencies and cooperation explained events leading through phase three. However, through the repeated cost over-runs, the schedule delays and the resolution of the technical performance issues, the decision by the Navy not to fund a portion of the JMMS because there was no Naval Service operational requirement shifted the applicability of the theory to the High Level Objectives.

The “Summit” meeting during the spring of 2008 proved to be the critical point in determining the viability of RBT’s ability to explain the outcomes of the case study and, in the end, USSOCOM had to call on its unique authorities to move past phase three in the case. In fact, RBT explained prioritization differences between USSOCOM and Navy in undersea capabilities. The question became, could USSOCOM keep the DCS high enough on all the stakeholders’ priority lists to effect its desired outcome?

The next section of this chapter, process tracing methodology, will employ the insights gained from the RBT analysis and mapping completed in the previous part of this chapter to analyze the actions of the actors of the defense establishment involved with the development and procurement of the DCS capability. Focusing at the major inflection points of the program, the motivational source of organizational and bureaucratic action will be investigated to answer the principal research questions and determine how USSOCOM leveraged its unique authorities as well as explain the intervention of actors endogenous and exogenous to DoD.

Process Tracing Methodology

Chapter Three discussed the history of the three platforms, the events surrounding *what* happened in the development of the DCS capability, and actors endogenous and exogenous to DoD *who* participated in the development of the DCS capability. The previous sections in this chapter applied resource based theory to both the Naval Special Warfare and the Submarine Force, the undersea components to both USSOCOM and the Navy respectively. Their distinct competencies that form the basis for organizational differentiation and bureaucratic imperative provide the theoretical framework to understand *why* USSOCOM and its component NSW as well as the Navy and its components, the Submarine Force, NAVSEA, and the civilian policy echelon, acted the way they did. Additionally, three linked competencies that can potentially serve as a basis for cooperation were derived: clandestine undersea operations, access to denied areas in the maritime domain, and facilitate access for the Geographic Combatant Commander and the National Command Authority.

Given this context, this section follows the actions of the independent variable, the source of the behavior, USSOCOM and the intervening variables, actors endogenous and exogenous to DoD, and the effect on USSOCOM's ability to reach its procurement objective using the process tracing methodology. The motivations of USSOCOM and its components and the US Navy and its components are analyzed through the lens of Resource Based Theory. The actions taken by the other actors in the defense establishment, each of which have organizational and bureaucratic interests and have an opportunity to intervene into the JCIDS, Acquisition and the PPBE processes, which provides the action channels for their influence, is predicated on an application of the organizational and bureaucratic politics literature covered in Chapter Two.

The analysis in this section focuses on five actors in the defense establishment: USSOCOM, the Navy, DoD, Congress, and industry. Three of these are endogenous to DoD; USSOCOM, the US Navy, and DoD's civilian policy echelon.[16] These actors are not monolithic, and several subcomponents directly involved with the case study are discussed, including the role of Naval Special Warfare, the maritime component of USSOCOM and the Submarine Force, the undersea component of the Navy.

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[16] Note that the President, the Commander-in-Chief, and his National Security Council and budgeting staff are not listed as a separate entities in the time line. The DoD civilian policy echelon are political appointees and represent the President's interests, as discussed in the organizational and bureaucratic politics framework covered in Chapter 2. The influence of the administration will be covered in Chapter 5, the analysis chapter, when civil-military relationships are discussed in the context of the principal research questions.

The first section briefly recounts the operational requirement and examines when and why Naval Special Warfare originated the requirement. More importantly, it traces when and how USSOCOM maintained the requirement. The second section focuses on the influences endogenous to DoD and examines each of the actors, their roles and how they influenced USSOCOM's outcome. This section also discusses USSOCOM's use of their unique authorities to influence DoD. Finally, the third section focuses on the roles of the actors exogenous to DoD and the influence they exerted on USSOCOM's ability to reach its procurement objectives.

Operational Requirements and Naval Special Warfare

As noted in the history of the platform in Chapter Three, the requirement to develop a dry submersible platform originated with Naval Special Warfare for the purposes of accessing denied and politically sensitive areas in the maritime domain. Unlike other NSW undersea or surface mobility platforms, the DCS presented NSW with the ability to insert SEALs into an objective area over longer ranges and in extreme cold water conditions in a completely clandestine manner and then loiter in the objective area to extract SEALs or provide other supporting actions. This capability could not be provided by any of the current or planned surface ships, the wet combatant submersible called the SDV, or a Navy fleet submarine.

NSW submitted the Operational Requirements Document in 1987 at an interesting time: the last days of the Cold War and right after the creation of

USSOCOM. In fact, the newly created Naval Special Warfare, USSOCOM's maritime component, had just established a new N-8, a naval staff designation for operational requirements.[17] One of the first challenges it faced was that the platform was designed to access certain maritime targets in the context of naval campaigns that supported now obsolete Cold War Operational Plans.[18] However, after the creation of USSOCOM and the demise of the Cold War, the distinctive competency of accessing denied and politically sensitive areas in the maritime domain took on new meaning. This operational requirement then expanded beyond the objective of support to naval operations to Joint Operations and national level assignments.

The ASDS and follow-on DCS platforms were USSOCOM's Special Operations Peculiar requirements designed to support more than simply naval objectives. Over time and with a changing international security environment, USSOCOM's relationship with the interagency community grew in importance,[19] just as the strategic concept surrounding the employment of Special Operations evolved and expanded. Strategically, Special Operations progressed from merely enhancing the performance of general purpose forces, a naval amphibious force for example,[20] to one that continues to enhance conventional force performance. Moreover, Special Operations are now considered by some scholars and operators

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[17] Author interview with Tom Richards, Portsmouth, NH, August 22, 2011.
[18] Ibid., also see Susan L. Marquis, *Unconventional Warfare: Rebuilding U.S. Special Operations Forces. The Rediscovering Government Series* (Washington, D.C.: Brookings Institution, 1997).
[19] Author interview with Lt. Gen. David P. Fridovich, Washington, DC, January 27, 2011.
[20] Kiras, *Special Operations.*

as able to catalyze the effects and extend the reach of other instruments of national power, such as the diplomatic or intelligence instruments.[21]

A legacy of repeated success by Special Operations Forces, including the Naval Special Warfare undersea component, in a wartime environment encouraged confidence across the force and at the level of the National Command Authority in Special Operation Forces. This in turn resulted in a willingness to accept political risk for continued operations across the spectrum of conflict, [22] further reinforcing the need for the dry submersible platform; simply put, success bred new missions and new missions required new platforms. In this context, Naval Special Warfare and USSOCOM prioritized the capability internally and advocated for its support externally. They also developed a broad consensus surrounding its endorsement as a Special Operations-Peculiar capability by actors both endogenous and exogenous to DoD.

However, the story of the DCS does not simply reflect a one-time articulation and validation of an operational requirement. In fact, it is the story of repeated starts and stops and re-evaluations in the face of technical and programmatic difficulty, congressional criticism and operational success. USSOCOM's dogged and persistent advocacy for the DCS capability as the program sponsor for the three programs reflects the importance of DCS's SOF-Peculiar and the Distinctive Capability for the Naval Special Warfare component.

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[21] Sass, "Finding the Right Balance."
[22] Deployments post 9/11 are up dramatically and Naval Special Warfare is tasked with the nation's most important missions. Headline grabbing missions such as the recovery of Captain Phillips of the *Maersk Alabama* or the killing of Usama Bin Laden illustrate the assertion. Author interview with Eric Olson, Newport, RI, May 2011.

Time and again, USSOCOM judged this program too important to fail, and as discussed below, went to considerable lengths to keep it alive. As early as the end of ASDS phase one in 1997, the Commander of Naval Special Warfare rejected the Assistant Secretary of the Navy for Research, Development and Acquisition's (ASN RDA) recommendation to cancel the program. ASN RDA, then serving as the Milestone Decision Authority,[23] believed that the program was not executable as structured. For the commander of Naval Special Warfare, however, the cost, schedule, and performance set-backs, a Critical Success Factor for both the DoD policy Level and USSOCOM, were acceptable because of the imperative that he had to maintain: a competitive advantage in undersea SOF mobility built around the distinct competencies of crossing the high water line after a long range cold water infiltration, the Distinct Competency that drove the requirement.

The same tradeoff occurred during the second and third episodes, between December 2003 through January 2006 when the ASDS experienced no less than five subsystem failures at sea, beginning with the tail failure and concluding with the mast and stern plane failures, questioning the reliability of the boat and its design. During this period, costs dramatically escalated, taking the program from an originally contracted six hulls for $78M to $649M for one hull,[24] causing

[23] Milestone Decision Authority, or MDA, is the authority to "review the acquisition program, monitor and administer progress, identify problems, and make corrections." Brown, *Introduction to Defense Acquisition Management,* 43.
[24] NAVSEA, "Program History: Advanced Seal Delivery System (ASDS)," PowerPoint Presentation, Naval Sea Systems Command, 2008. This number is through June 2007 and includes cost of Reliability Build 1 which occurred in December 2006. The GAO Audit of 2007 listed cost as of May 24 at $885M which includes costs for military construction, personnel costs and other costs not directly related to the development and procurement

Congress and DoD to intervene, increasing both oversight as well as a need for USSOCOM and NSW to justify their continued support to the program. The organizational and bureaucratic imperative NSW felt to maintain the requirement and USSOCOM felt to continue dedicating enormous resources to as the program's sponsor is manifested in the staff work conducted related to the ARAP and the AIP. This organizational and bureaucratic imperative was also felt internal to USSOCOM. In 2004, NSW, reacting to the uncertainty surrounding the program, submitted its fifth revision to the original requirements document, continuing the trend to reduce the scope of the "single component requirement," but maintaining its essential capability that supported a NSW distinct competency.[25]

Finally, the NSW's and USSOCOM's organizational and bureaucratic imperative is arguably best demonstrated in phases 4 and 5 with the transition from the JMMS, whose design was similar to the ASDS, to a radically innovative design represented by the S301. Faced by isolation from both the Navy and the Intelligence Community over the JMMS due to different prioritization of the HLOs and a reduction in resources by OSD CAPE, NSW proposed and USSOCOM advocated for a change in undersea strategy. This change in strategy

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of the ASDS. Costs for Reliability Build 2, which occurred in the third quarter of FY 2008, are not part of this figure.

[25] Vice Admiral Eric T. Olson, "Memorandum For: Commander, Naval Special Warfare Command: Advanced SEAL Delivery System (ASDS) Operational Requirements Document (ORD) Revision 5," January 7, 2004, (Tampa, FL: United States Special Operations Command, 2004). This memo is unclassified and the changes to the ORD are classified. However the nature of the requests to reduce the scope of the capability is accurate and corroborated in GAO 2007. The implication for the phrase "single component requirement" is that the resources dedicated to this capability are unique to NSW vice a requirement that is common to all service components, such as a parachute, weapon, or radio. This further emphasizes the bureaucratic imperative NSW felt regarding the distinct competency, in RBT terms.

was based on placing the combatant submersible inside the Dry Dock Shelter to protect it from the hydrostatic loads that ASDS suffered, a new engineering and safety certification standard, and importation of specific foreign expertise relating to dry submersibles.

Although it is arguable that personalities resident in the Commander of USSOCOM and the Secretary of Defense as well as the organizational stature and influence USSOCOM enjoyed in 2011 because of its performance and role during ten years of the Global War on Terror were influential, it is also arguable that NSW and USSOCOM's relentless pursuit of a dry combatant submersible requirement is fundamental to NSW's ability to maintain its role and mission as a service component of USSOCOM. As the RBT analysis showed, the Distinct Competencies of *crossing the high water line, long range cold water infiltration, clandestine undersea operations, accessing sensitive and denied areas in the maritime domain, and technological innovation* provide NSW with the ability to ensure competitive advantage and provide the premier maritime undersea mobility for SOF. It was essential that NSW and USSOCOM advocate for this requirement.

The Influences Endogenous to DoD: USSOCOM

USSOCOM is the principal actor in this story, and this story demonstrates that the source of its behavior rests in Title 10 of US Code, section 167.[26] USSOCOM was created to ensure Special Operations Forces possessed the

[26] Title 10, US Code.

organizational stature and tools to effectively advocate for resources and to provide Special Operations Peculiar capabilities in the defense establishment dominated by the military services. Several authorities have particular relevance to this study, which addresses JROC of interest items, as opposed to those requirements assigned a PQD below ACAT1.[27] First, the Commander of USSOCOM, designated with a grade of a four star officer and granted head of agency status, interacts at the highest echelon of the Department of Defense. As a Specified Unified Commander, USSOCOM reports to the Secretary of Defense and, as a provider of forces to the Geographic Combatant Commanders, interacts with each of them to ensure the proper employment of SOF. This function includes the establishment of operational concepts, strategy doctrine, tactics, techniques and procedures. Second, in its principal force-providing function, USSOCOM validates SO-P requirements and holds Acquisition Executive Authority to develop and procure SOF-Peculiar capabilities. In this capacity, he interacts with the services to define service common versus Special Operations-Peculiar requirements and ensures combat readiness of SOF. For the purposes of this study, he accesses the Secretary of the Navy and the Chief of Naval Operations when service support does not meet expectations.[28] Third, USSOCOM

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[27] The Joint Staff delegated validation of SO-P requirements below ACAT1 designation to USSOCOM. USSOCOM then retains MDA and can both program the requirement and execute its budgeted program through its acquisition authorities and organization. James E. Cartwright, "Delegation of Authority for Special Operations Capabilities to Special Operations Command," 2 November 2009, (Washington DC: Joint Chiefs of Staff). See Chapter 3, Figure 1.

[28] The identification and acceptance of risk to operators is a fundamental tension point in the case study. Identification and acceptance of operational level risk resides with the Geographic Combatant Commander under whose command SOF executes its operational

possesses Major Force Program Eleven (MFP-11) to spend on SOF-Peculiar capabilities and staff elements to plan, budget and execute the major force program. These three statutory functions will be the guide for analyzing USSOCOM's actions in the defense establishment.

First, the Commander USSOCOM improved his ability to leverage his positional authority, stature and access throughout the case. Three specific instances and two general trends stand out to illustrate this assertion. Evidence does not indicate that the Commander of USSOCOM involved himself personally during the initial stages of the program, but that is most likely a reflection of the well-documented and criticized abdication of USSOCOM's Acquisition Executive Authority and granting Milestone Decision Authority to the Navy. This will be discussed later. The exception could help to explain the end of Phase 1, when NSW and USSOCOM asserted their authority as program sponsors and rejected the Assistant Secretary of the Navy for Research and Development's recommendation to cancel the program during its early development stage, instead choosing to continue sponsorship of the NSW priority.

However, during the transition from phase two into phase three, the repeated operational and test failures required USSOCOM involvement. USSOCOM accessed the highest levels of DoD and industry in the events surrounding the ASDS Reliability Action Program and the follow-on ASDS Improvement Program designed to fix the boat and put it back to sea as a man of war. During this time, USSOCOM interacted with the Joint Requirements

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tasking. Identification and acceptance of risk to operators in a service common vice SO-P asset has a fundamental impact on the outcome of the case.

Oversight Council in February 2007 to defend the operational requirement[29] and keep the Defense Establishment focused on the capability.

Additionally, the classification of the program as an ACAT 1C and later an ACAT 1D placed the oversight responsibility at the national policy level in the hands of the Under Secretary of Defense for Acquisition Technology and Logistics, requiring USSOCOM attention.[30] Three specific events and general observations demonstrate his eventual excellent leverage of his stature and position.

The first is the "Summit Meeting" that included the Secretary of the Navy, the Chief of Naval Operations, and the Commander USSOCOM. At this summit, the Navy revealed that it did not prioritize[31] the JMMS as high as USSOCOM and decided not to contribute funding to the program. In the aftermath, the Commander USSOCOM went directly to the Deputy Secretary of Defense, advocated for the requirement and consequently received a $1.2 B plus, up from DoD for the program.[32] Although a significant portion of the funding was removed later by OSD CAPE, and will be addressed shortly, USSOCOM demonstrated that he was willing and able to leverage his access when his High Level Objective was in imminent danger of not being met.

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[29] GAO 2007. In lieu of an ICD for AMS Analysis

[30] ACAT 1C designation is granted when R&D funding reaches a certain level. ACAT 1D is granted when the program requires additional oversight. Either designation requires USD AT&L, DoD's senior acquisition official, to function as the MDA, increasing the oversight over the USSOCOM sponsored program to the national defense policy echelon. See Brown, *Defense Acquisition.*

[31] This difference in prioritization is a reflection of the difference in High Level Objectives of the Navy and USSOCOM identified in the RBT mapping diagram.

[32] Winford Ellis, phone Author interview with Author, October 7, 2011. During this phase of the program RADM Ellis was Special Assistant to the Secretary of the Navy for Undersea Warfare and the briefer for the meeting. This version of events was corroborated by the CNSW Requirements staff.

The second demonstration of his use of access and stature specific to this program occurred during the transition from Phase 4 to Phase 5 when USSOCOM reacted to OSD CAPE's removal of $500M funding for the program. The Commander, USSOCOM leveraged his position as a Unified Commander to directly request the Secretary of Defense for approval to change his undersea strategy.[33] Bypassing the naval service and its sub-components,[34] the Commander followed the policy hierarchy until he received permission from the Secretary of Defense to introduce an innovative operating concept into the program.[35] To enable the strategy, USSOCOM continued to leverage his access as a unified combatant commander and requested and received from the Secretary of Defense an exception to Title 10, section 7309 of US law,[36] which is an exception to the restriction of naval vessel construction with domestic defense firms which authorized USSOCOM to investigate foreign submersible builders when

[33] USSOCOM briefing to SECDEF. "SOF Undersea Mobility Way Ahead." PowerPoint Presentation. 2010. Also in Eric Olson, phone interview by Author, November 2011.
[34] Author interview with Gard Clark,Washington, DC, November 15, 2011; Author interview with Mark Pawlowski, Washington DC, November 15, 2011.
[35] The inspiration for the change in strategy originated with the Chief of Staff of the Army, also a former commander of USSOCOM, General Schoomaker, who cancelled the Commanche program to keep a family of rotary wing platforms. Meanwhile, bottom up pressure from NSW through discussions with Promare contributed to the discussion. ADM Olson, phone interview by Author, November 2011.
[36] Title 10, section 7309 states: "no vessel (is) to be constructed for any of the armed forces, and no major component of the hull or superstructure of any such vessel, may be constructed in a foreign shipyard." See U.S. Congress, *Unified Combatant Command for Special Operations Forces*, US Code, Title 10, Subtitle A, Part 1, Chapter 6, Section 7309. Washington, DC, 1986. Available at http://assembler.law.cornell.edu/uscode/10/usc_sec_10_00000167----000-.html, accessed September 22, 2009. Also in Author interview with Dan Crouch, Newport, RI, June 10, 2011.

USSSOCOM deemed it necessary.[37] The impact of this decision on the structure of the defense establishment is to challenge the foundational set of relationships in the iron triangle.[38] Although the Navy had moved outside the expertise found with US shipbuilders in the years following the Second World War,[39] section 7309 of Title 10 US Code had not been established. Additionally, the law was enacted in the context of the Cold War and the idea of technological advantage over a unified and monolithic enemy had passed, especially in the post 9/11 strategic environment.

Since the enactment of the law, the defense industry underwent severe consolidation and the Navy itself reduced in size by one-half. Although one could say that the potential scale of the threat from foreign construction of the DCS capability would be small, the fact is that any contract was a loss to US shipbuilders and therefore important to congressional delegations representing NGC Newport News Shipbuilding and General Dynamics Electric Boat, both politically and economically. It represented a revenue stream that could leverage existing submarine construction facilities coupled with risk to that revenue stream covered by the government because of the developmental status of the program and the subsequent contracting strategy that accompanies developmental programs.

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[37] Gates, Robert M. "Secretary of Defense Memorandum serial OSD 03383-11: Delegation of Authority to Grant Exceptions to the Prohibition in Title 10." edited by Eric T. Olson. (Washington, DC: Department of Defense: Secretary of Defense, 2011).
[38] The Iron Triangle is the relationship between the naval service, Congress and the domestic ship building industry. In this case the submarine industry.
[39] See chapter 3.

The third demonstration relates to the Commander's ability to alter the entire requirements process relative to Special Operations Peculiar capabilities. In November 2009, the Vice Chairman of the Joint Chiefs of Staff, serving in the position as the head of the JROC, concurred with the Commander USSOCOM and designated the Special Operations Command Requirements Evaluation Board as the manager and approving authority for all Special Operations Peculiar (SO-P) capabilities below JROC interest. The agreement stated: "USSOCOM will perform certifications, subject to the review by Joint Staff certifying officers, which are acceptable to establish certification of SO-P capability documents."[40] For most of its requirements, the Commander of USSOCOM has the unique ability to validate his forces' own operational requirements, budget the program and execute the budget to develop and procure the capability that fills the operational requirement. However, that does not extend to major acquisition programs, such as the case of the DCS. When USSOCOM executes a major acquisition program, it must interact with the Joint System.

The final demonstration refers to the evidence that USSOCOM leveraged its access and stature with Congress exceptionally well. Because USSOCOM is a creation of Congress, it started with an advantaged relationship. The command consistently engaged with Congress in a way the services do not. Congress is organized by committees. USSOCOM selectively engages congressional

[40] General James E. Cartwright, "Memorandum: Delegation of Authority for Special Operations Capabilities to Special Operations Command," JCROCM 179-09, 2 November 2011, (Washington, DC: The Joint Staff). At the time, the Commander USSOCOM persuaded the VCJCS that Congress had intended that USSOCOM's development and acquisition process was intended to be something different that the services. Also by Eric Olson, phone interview by Author, November 2011.

members across 6 committees and 4 sub-committees, some of which have overlapping assignments, in both the House of Representatives and the Senate.[41] The USSOCOM team is composed of field grade officers just returning from the field and generally a rank structure lower than those of the services and therefore a little less polished.[42] The USSOCOM team is proactive and focuses their engagement on educating and informing Congress by creating and maintaining a relationship based on exchanging both the good news as well as the bad news stories in a timely fashion with congressional members and professional and personal staffers.[43] These two factors, in addition to the overwhelming operational success, create an aura of credibility on the part of USSOCOM.[44]

During the engagements, the staff officers observe the environment and communicate their insight on the political climate and their assessment of how it may impact USSOCOM's efforts back to USSOCOM and the components.[45] Additionally, selected professional staff members (PSMs) and personal staff members visit the forces to inspect the capabilities in the field multiple times a

[41] These committees include the House and Senate Armed Services, Appropriations, and Select Committee on Intelligence Committees and the sub-committees on Emerging Threats and Defense Appropriations. From the Director, USSOCOM Legislative Affairs Office, interview by author, December 6, 2011.
[42] USSOCOM Legislative Affairs Office is staffed by field grade officer s who will do only one tour vice the services who are led by general or flag officers and staffed with field grade officers on multiple tours, making them more informed and polished. Although less polished, these officers present a candid view and understand the tactical context in which issues appear.
[43] Author interview with Congressional staffer, Washington DC, November 17, 2011. Confirmed by phone interview with the Director of and Action officer from USSOCOM Office of Legislative Affairs, December 6, 2011.
[44] Author interview with Doug Gregory, Washington, DC, November 2011. Mr. Gregory is Vice President, Van Scoyoc Associates and former personal staffer for Congressman Young and professional staff member of the House Appropriations Committee.
[45] Phone interview with staff officer, USSOCOM Legislative Affairs Office. December 6, 2011.

year over multiple years. This repeated engagement provides long-term familiarity and depth of understanding of the issues and has facilitated cooperation between USSOCOM and Congress dating back to its creation.[46]

The effect of credibility with respect to this study is clearly illustrated in the repeated cost breaches for major defense acquisition programs under the Nunn-McCurdy legislation.[47] USSOCOM, the program sponsor, was able to repeatedly gain congressional support for increased funding when the program exceeded the legislation limits as early as 1998. The developmental and acquisition contract was originally let to procure six hulls for $78M. By 1998, Congress had authorized and appropriated $175.3M, a cost increase of 125% for the development of the first hull![48] The Nunn-McCurdy legislation stipulates that a major defense program conducts a significant or critical breach if the program's unit acquisition cost exceeds its base line by 30% or 50%, respectively, over its original cost estimate and is to be cancelled if the secretary of defense does not justify the cost growth or take certain positive actions that fundamentally restructure the program and its milestones.[49] Yet this condition continued through the end of phase *two*. At that event, the thrust bearing failed during the second FOT&E. Subsequently, NAVSEA decertified the ASDS and USSOCOM

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[46] Author interview with Kent Clark, November 15, 2011. Mr. Clark is a Professional Staff Member, House Appropriations Committee and Chad L. Maxey, Military Legislative Fellow, Rep. Young.

[47] Nunn-McCurdy legislation is intended "to provide Congress greater visibility into major defense programs' cost growth and to encourage DoD to manage and control cost growth." GAO, *GAO-11-295R*: *Trends in the Nunn-McCurdy Cost Breaches for Major Defense Acquisition Programs* (Washington, DC: Government Accountability Office, 2011), 3.

[48] NAVSEA ASDS program history brief. Slide 37.

[49] GAO Report 2003, 3-4.

rescinded its operational status in December of 2005. The cost of the program had increased to $528.6M, an increase of 678% over the original estimate for six hulls. It was at this point that the ARAP began its work. At the conclusion of the first of two Reliability Builds, or halfway through the AIP, in June of 2007 right before USSOCOM re-designated the ASDS as an operational platform, the cost had reached $649M.[50] At this point USSOCOM continued to advocate and Congress continued to fund ASDS when the program was 832% over budget for only the first of six originally required hulls. Additionally, USSOCOM persuaded Congress to repeatedly shift funding between RDT&E and Procurement funds within investment accounts in order to preserve the overall resources.[51]

Moving to its second unique authority, USSOCOM exercised its Acquisition Executive Authority with mixed results. As the organization gained experience, it gradually learned to leverage its Acquisition Executive Authority. Congress extended considerable criticism to USSOCOM as a program sponsor that relinquished control of the program by ceding both MDA and program management to the Navy while maintaining its role of program sponsor in which it simply provided the Navy funding.[52]

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[50] Ibid.

[51] Author interview with Doug Gregory. Evidence provided seen in FY 2003, FY 2005, FY 2012 appropriation committee reports and legislation, with funds being changed by line item within the investment accounts from procurement back to RDT&E. For a full recounting, see U.S. Congress. House. *Committee on Appropriations. Report of the Committee on Appropriations to Accompany HR 5010: Department of Defense Appropriations Bill, 2003*, 107th Cong., 2d sess., 2002; U.S. Congress. House. Committee on Appropriations, *Report of the Committee on Appropriations to Accompany HR 4613: Department of Defense Appropriations Bill, 2005*. 108th Cong., 2d sess., 2004; U.S. Congress. House. *National Defense Authorization Act for Fiscal Year 2012*, H.R. 1540, 112th Cong., 1st sess., May 17, 2011.

[52] For further discussion, see GAO reports of 2003 and 2007.

The ARAP went further and identified "prolonged inadequate programmatic and technical oversight (as) the most significant factor responsible for ASDS program problems."[53] Although the technical oversight falls directly on NAVSEA and the Navy and will be discussed later in the influences endogenous to DoD section of the chapter, the identification of the programmatic oversight as the number one of three root causes for the disastrous outcome of the ASDS through the FOT&E failure that concluded phase two falls squarely to USSOCOM. Additionally, the ARAP report identified USSOCOM's "acquisition strategy that relied on the prime contractor to meet performance requirements,"[54] one of the three parameters, or Critical Success Factors, that are used by DoD and Congress in their oversight capacities of USSOCOM's acquisition authority.

The USSOCOM-sponsored contracting strategy reflected the principal shortfalls identified at the initial stages of the case study, in that the strategy mismatched resources against operational requirements. The mismatch was further witnessed by USSOCOM's selection of the lowest cost bidder of $78M with an unrealistic cost, schedule and performance projections even at the peril of ignoring original Navy contract estimates of $178M. The other aspect of the mismatch is that the initial contractor did not possess the experience, the technical expertise, or the resources to construct the ASDS. [55] This observation will be elaborated on later in the chapter when influences exogenous to DoD are discussed.

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[53] Brown, Charlie, et. al, *Advanced SEAL Delivery System (ASDS) Reliability Action Panel (ARAP) Phase 1 Report* (Tampa, FL: Special Operations Command, 2010), 4.
[54] Ibid., 5.
[55] For further discussion, see GAO reports of 2003 and 2007.

Two actions taken by USSOCOM set the stage for the dramatic variation in the anticipated cost, schedule and performance outcome, the Critical Success Factor that that held all stakeholders' attention. The 1997 decision to continue sponsorship of the ASDS program after the prime contractor failed to deliver the ASDS meeting Key Performance Parameters, on schedule, and at cost is the first action. Ignoring the ASN RNA's recommendation, USSOCOM continued to fund the contract. Thus, USSOCOM missed an opportunity to adjust principal elements of the business case[56] and establish an effective contracting strategy[57] behind the program. The second action occurred in June of 2003 when USSOCOM accepted delivery of the ASDS in an "as-is condition." After accepting the platform, the contracting mechanism was changed by NAVSEA and a Basic Ordering Arrangement (BOA) "that provided no profit incentive for the contractor incentive to cut costs or work efficiently."[58] Post emplacement of the BOA, USSOCOM paid for $84M in redesign work through 2005 that, for the most part, had "been for efforts to correct design deficiencies and to improve ASDS reliability."[59] Although these two decisions to accept less than contract specifications seem counterintuitive, if not irrational, the drive to fulfill the only requirement that enhanced NSW's Distinctive Competency explains the actions.

[56] 2007 GAO report, 4. The business case includes: articulation of firm requirements, employment of mature technology, a knowledge-based business acquisition strategy, realistic cost and schedule estimates and enough funding.
[57] Ibid. An effective contracting strategy includes partnering with a contractor with the proper expertise, balance of programmatic risk, ability to manage and assess contractor performance.
[58] Ibid., 7. The BOA identified fixed price labor hour price structures and cost plus fixed-fee arrangements for future orders. In the former, a scale was paid for the type of work and a profit was priced into the unit cost charged to USSOCOM. In the later, revenue was guaranteed the contractor regardless of the performance, schedule or cost. In fact, 20 of 26 orders were delivered late and 12 of 26 over cost estimate.
[59] Ibid., 6.

Yet, as time passed, the criticism over USSOCOM's management of its acquisition authority surrounding the ASDS began to abate. On balance, this criticism was replaced with general cooperation with USSOCOM's efforts by both the executive and legislative components of the defense establishment and specifically reflected by their support of USSOCOM's efforts with managing MFP-11 funding. This will be discussed below. However, concern over USSOCM's management of its acquisition authority was raised again, this time after the FOT&E failure in October of 2005 and NAVSEA's subsequent decertification of the ASDS and USSOCOM rescinding its Fielding and Deployment status.

USSOCOM's response to the failure was to restructure the program and reduce the required number of hulls to one. Congress concurred with the restructuring; however, USSOCOM's restructuring of the program did not appease its concern and frustration over the continued performance shortfalls, schedule delays and cost increases.[60] Congress expressed its concern and frustration by restricting funding for advanced procurement of components for the ASDS until "USD AT&L has made a favorable milestone C decision regarding the Advanced SEAL Delivery System."[61] The bill further states: "the Defense Acquisition Board shall review and forward a report on the options regarding the ASDS, including a potential recommendation to terminate the program."[62] In

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[60] U.S. Congress. House. *Conference Report to Accompany HR 2863: Making Appropriations for the Department of Defense for the Fiscal Year Ending September 30, 2006, and for Other Purposes*. 109th Cong., 1st sess., December 18, 2005.
[61] U.S. Congress. Senate. *Report to Accompany S. 1042: National Defense Authorization Act for Fiscal Year 2006*. 109th Cong., 1st sess., 2005.
[62] Ibid.

essence, Congress communicated that the reservation they developed over USSOCOM's execution of its acquisition authority, expressed in 2003, had not disappeared.

Positive indications of USSOCOM's desire to reverse its initial abdication of its authorities to what would become a jealous defense and eventual attempt to leverage its congressionally granted unique acquisition authority[63] to achieve its procurement objectives developed. Starting with the rejection of the ASN RDA's recommendation to cancel the program in the early stages of phase 2, USSOCOM grappled with technical and design problems, the realities of the developmental program that it incurred by continuing vice starting anew as described above. As the technical issues produced performance shortfalls during repeated operational testing failures, USSOCOM convinced the milestone decision authority to shift milestone C multiple times. As the design was revised and the repairs made, the schedule slipped and the cost grew, raising attention to the program because it did not meet the critical success factor of any acquisition program, let alone one sponsored by USSOCOM. Yet USSOCOM stubbornly maintained its sponsorship and financial commitment to the program intended to support an NSW distinctive competency.

Four events stand out to accelerate USSOCOM's gradual increase in exercising its acquisition authority. The first is the decision to drive the ARAP. Although it was organized by NAVSEA, co-chaired by a USSOCOM and

[63] Author interview with Eric Olson, Newport, RI, May 2010. Congress granted the authorities and the MFP-11 tool to USSOCOM. This observation strikes at the core of the centralization versus distribution of authorities with the establishment of the Department of Defense itself. See Chapter 2.

NAVSEA representative and included broad participation from industry, USSOCOM set the high level goal to fix ASDS-1.[64]

Several years later, in the fall of 2009, in arguably one of the most important decisions surrounding the development of the capability, USSOCOM cancelled the JMMS program. Although USSOCOM reacted to the influence of OSD-CAPE, and although USSOCOM received other advice on course of action[65] to take to achieve the stated procurement objective, USSOCOM acted as it saw fit.

In the aftermath of the cancellation of JMMS, USSOCOM continued to flex its authority and introduced an innovative effort to achieve its procurement objectives. The change in undersea strategy of putting the combatant submersible inside the protective shell of the Dry Dock Shelter, vice exposing the combatant submersible to the hydrodynamic forces that develop behind the sail of the host submarine, was the inspiration. The epiphany was that USSOCOM realized that the right Dry Dock Shelter hanger in which you could place and launch any submersible provided the flexibility for the program.[66] Interestingly enough, even though USSOCOM cancelled the JMMS program, it argued for using the funds without submitting the requirement to the JROC. At this point, USSOCOM flexed its authority and decided to retain both the program management and retain MDA authority.

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[64] NAVSEA ASDS Program History Brief.

[65] The alternative course of action would have been to not cancel the program, but to leverage industry and request a proposal in an effort to quantify and price out the risk to build another ASDS.

[66] Author interview with Eric Olson, May 2011.

Finally, USSOCOM attempted to leverage is unique authority and arguably found its limit in the technical expertise and safety certification functions of NAVSEA. USSOCOM's new strategy depended on a smaller platform that would fit into the DDS, so the combatant submersible would not have to be built to the same operating parameters of the host submarine, or as in the ASDS, limit the operating envelop of the host submarine.[67] However, when confronted by NAVSEA's tenacious defense of its technical and safety certification function with its inherent zero technical risk bias,[68] evidenced in its 9290 certification instruction and NAVSEA's refusal to either certify the S301 or accept external American Ship Building Standards, USSOCOM was forced, at least temporarily, to define the relationship with NAVSEA relative to SO-P assets as operating on or from a submarine.[69]

If at the height of USSOCOM's vision and ability to exercise is unique authorities it is confronted by a naval subcomponent with an independent engineering and certification distinct competencies and charter, one could interpret the circumstance as the illustration of the limit of USSOCOM's authorities. However, one could also look at it and interpret the ongoing impediment to USSOCOM exercising its unique authorities as an internal problem. As the structural graphic illustrates with the two functional boxes for both the naval service and USSOCOM headquarters, USSOCOM possesses MFP-11 funding, and Navy possesses resident Naval In-Service Engineering Agencies

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[67] Outcome of the AIP. Author interview with PMS 399.
[68] Tim Kelly, phone interview by author, November 26, 2011. CAPT Kelly is PEO Maritime.
[69] The NAVSEA line in the sand and perspective will be discussed later in the chapter.

as well as the Naval Sea System Command. Just as safety certification of the ASDS and S301 systems impacted the course of events, so too did the In-Service Engineering Agency. It played an essential role in the development of the lithium ion batteries, indicating another USSOCOM shortfall because of its reliance on external engineering and design organizations. The direct impact also becomes a limitation on innovation in that established engineering constructs either slow or channel the adaption of other technologies into platform design.[70]

With regard to exercising its legislated granted authority to validate Special Operations-Peculiar capabilities, USSOCOM clearly moved forward. Title 10 section 167 clearly authorizes USSOCOM to validate SO-P capabilities.[71] However the 2009 JROC delegation of validation for all SO-peculiar requirements below ACAT 1 designation reflects more than an administrative delegation of authority and control mechanism. It represents recognition by the Joint Force of Congress's original intention that USSOCOM's developmental and procurement processes should be something different than those of the services.[72]

With regard to the third aspect of USSOCOM's unique authorities, USSOCOM consistently focused its MFP-11 funding on Special Operations Peculiar capabilities and enabling activities as well as adeptly leveraging its

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[70] NAVSEA ASDS Program history brief. The initial NAVSEA investigation identified non-submarine builder with a good idea, but lacking in the technical expertise as a fundamental root cause to the initial performance shortfall, cost over-run and schedule delays. Also see Lautenschlager on the evolution of Naval platforms.

[71] Title 10 section 167.

[72] Author interviews with ADM Olson (May 10, 2011) and Mr. Gregory.

control of the funds as a tool to break structural roadblocks and achieve its desired outcome.

Section 167 of the Title 10 legislation specifically authorizes USSOCOM to conduct the "(1) development and acquisition of special operations-peculiar equipment; and (2) acquisition of other material, supplies, or services that are peculiar to special operations activities."[73] USSOCOM's actions in this case reflect its persistent attempt to satisfy its High Level Objectives with the authority granted in legislation. Several actions stand out as illustrations of USSOCOM's, at times, creative and adept employment of its MFP-11 funds.

First, the categorization of the three platforms varied between developmental and acquisition programs. All three were intended to fill a capability gap that fit beyond the requirements of the Navy and beyond anything that existed elsewhere. The decisions made at the summit, held in April of 2008, clearly point to the consensus opinion reached that day by the Chief of Naval Operations and the Secretary of the Navy. The ASDS and the JMMS did not fulfill a Naval requirement and therefore the Navy would not cooperate and share funding obligations for the development and procurement of the JMMS. The decision reflected a differing HLO between the Navy and USSOCOM. The Commander of USSOCOM, present at the meeting, was forced to accept the implication of the decision: it was a special operations-peculiar platform and would have to provide funding for its development and acquisition.

Second, the persistent prioritization of the single component requirement illustrates USSOCOM's strong belief in the mission it assigned to NSW and a

[73] Title 10, Section 167.

desire by NSW to develop a system that fulfilled the HLO of obtaining an undersea capability that provided a competitive advantage for NSW. In fact, USSOCOM attempted to achieve its critical success factor of developing and acquiring an effective single SOF component capability that reinforced NSW's distinctive competency and enduring competitive advantage found in the systems that support the lock in and lock out.

Third, USSOCOM's and NSW's funding of the enabling activities that occurred throughout the second and third phases in particular were required to either alleviate a structural block or to build a feedback loop to synergize human, organizational and physical resources to build supporting capabilities. In the former case, the use of the funds as a tool can be explained as a means to achieve its Critical Success Factors and achieve its goal of developing and procuring the NSW undersea Distinctive Competency. Examples include independent analysis of prime contractor-provided components for the platforms and will be discussed later in the industry portion of the chapter. The latter case included the use of funds for enabling equipment such as the Extended Dry Dock Shelter necessary to transport and launch the family of dry and wet combatant submersibles that comprised the family of platforms in the new strategy, as well as specialized training for operators and technical personnel necessary to complete tests and evaluation.

With regard to the control of MFP-11 funds, USSOCOM adeptly managed the funds as a tool to ensure that it achieved the critical success factors of developing an effective Special Operations-Peculiar capability that provided the nation a competitive advantage over any adversary. Once again, 1997 sticks out. USSOCOM maintained the support for the program, even if it was clear that the cost, schedule and performance critical success factor would not be met. To further consolidate its imperative, USSOCOM requested and managed to persuade Congress to re-classify the appropriated funds from procurement back to RDT&E and back as necessary during phases two and three. More importantly, USSOCOM, as well as NSW, bypassed the prime contractor to contract directly with outside experts as well as subcontractors to break through structural problems.[74] Additionally, MFP-11 funding was used to leverage the prime contractor by USSOCOM's ability to link reliability issues in the ASDS with other reliability shortfalls in hydraulic systems that the prime contractor, NGC, was presenting to USSOCOM in other aviation programs.[75]

USSOCOM, a Joint Unified Combatant Command, has components from each of the military services. Therefore, USSOCOM allocates its MFP-11 funding across all the service components. As such, prioritization amongst the components can become an issue and a source of tension as service components compete for resources within the USSOCOM purview. The decision by OSD-CAPE to withhold \$500M in funding for the JMMS after the Deputy Secretary of Defense provided USSOCOM \$1.2B plus up in 2009 changed the outcome of the JMMS program in the 4th phase. With \$700M remaining, the competing demands for

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[74] GAO 2003. Author interview with John Green, February 17, 2011.

[75] Author interview with General Brown, former Commander USSOCOM, with the author during visit to SDV-1 in 2006. Confirmed by Admiral Olson, General Brown's successor as Commander USSOCOM in phone interview, November 2011. At the time, then Vice Admiral Olson, served as the Deputy Commander USSOCOM with complete insight into the program. Author interview with Olson, November 2011

rotary wing capability in the form of a new model MH-47, a troop carrier, to support immediate war demands in Afghanistan prevented both programs from being funded, prevented USSOCOM from re-allocating funds from other programs and caused USSOCOM to cancel the JMMS program.[76] USSOCOM possesses HLOs for multiple components with differing distinctive competencies and must make trade-offs between components. A complementary factor that altered the perception of importance and priority within USSOCOM and the defense establishment writ large is that the pressing Counter Terrorism effort was an immediate and important assignment for NSW. Perhaps clandestine infiltration into denied spaces lost some of its allure in the shadow of the Global War on Terror.[77]

Finally, USSOCOM delegates spending authority to its service components. In this particular case, the practice produced and opportunity for NSW as well as the conditions for potential bottom-up innovation.[78] NSW, going directly to subcontractors in search of means to leverage the prime contractor, merely followed its bureaucratic imperative to support its distinctive competency and achieve its principal HLO. With regard to potential bottom-up innovation, NSWG-3 continued to investigate alternative platform ideas. The resource for the lease of what eventually became the DCSL and DSCM and the family of platforms came from NSW.

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[76] Phone interview with ADM Olson (ret.), November 2011.
[77] Author interview with Mr. Doug Gregory, former personal and professional staff member for Congressman Bill Young of Tampa Florida, the home of USSOCOM.
[78] Spulak Jr., Robert G. *Innovate or Die: Innovation and Technology for Special Operations: JSOU Report 10-7*. Tampa, FL: Joint Special Operations University, 2010.

Actors Endogenous to DoD: Navy

Resource allocation in the public domain is understood to follow a process where organizational units within the administrative structure compete against each other by differentiating their organizational competencies and the outcome is influenced, if not determined, by bargaining power.[79] This study intends to test whether Resource Based Theory can induce cooperation through linked competencies across organizational lines. In this portion of the chapter, the role of the Navy, a military service department and service within the Department of Defense, in the three platforms will be examined through the lens of Resource Based Theory. Three overarching issues stand out in this case as the means to test the theory: first, cooperation with the submarine force; second, Department of the Navy oversight; and third, NAVSEA's program management, technical and safety certification.

First, the RBT mapping analysis of the submarine and the dry combatant submersible illustrated earlier in this chapter identified the three linking competencies: clandestine undersea operations, access to denied areas in the maritime domain, and facilitate access for the Geographic Combatant Commander and the National Command Authority. Cooperation along these lines was clearly seen with the Navy, but only up through the Echelon Two combatant lines of the Submarine Force and Naval Special Warfare. The Navy Submarine force cooperated along two fronts. First, cooperation occurred through the creation of feedback loops between the operating forces as they applied their various and

[79] The organizational and bureaucratic politics model was laid out in chapter 2, the literature review chapter.

divergent resources to develop the competencies needed to conduct ASDS operations at sea operating from a host submarine platform. Varying physical, human, and organizational resources from both forces were allocated and synthesized to prepare for and conduct operations. Cooperation became essential for the tactical elements to work together to achieve the tactical objectives and for their supporting commands to create the infrastructure and capacity to conduct and sustain operations. This cooperation entailed each organization allocating their allotted resources for their mutual benefit or for the benefit of the other to extend the capability and reach of their cooperating unit.

This same cooperation is seen at the echelon two level between both the Navy Submarine Force and Naval Special Warfare. It is clearly seen in the development of the Virginia and SSGN class submarines, the class of submarines that the Navy intends to use to host NSW undersea operations. The Navy, through the submarine force, allocated $400M of MFP-2 funding[80] to fit-up selected platforms in these classes to accommodate DDS and ASDS operations.[81] This resource allocation cooperation at this level is not restricted to Navy supporting NSW. In the case of the SSGN, NSW and USSOCOM, in anticipation of the need for a host platform from which to operate ASDS from and using MFP-11 funding,[82] offered and allocated $200M to cover the cost of the refueling of select

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[80] MFP-2 is Major Force Program 2 for conventional military operations. All funding in this category is allocated for certain capabilities across service lines and, as such, subject to JROC review for Major Defense Acquisition Programs. See Chapter 2.
[81] Author interview with Gard Clark. Also see U.S. Library of Congress, Congressional Research Service, *Navy Trident Submarine Conversion (SSGN) Program: Background and Issues for Congress* by Ronald O'Rourke, (Washington, DC: Congressional Research Service, 2008).
[82] MFP-11 is the SOF funding and one of the subjects of this study.

Trident Ballistic Submarine platforms scheduled for SSGN conversion. This was an effort to convince the Navy to create a class of submarine to host ASDS and DDS operations to fill a gap and replace the USS *Polk* (SSN-645) and USS *Kamehameha* (SSN-642), two 604 class ballistic submarines converted to host DDS operations that were decommissioned, and in anticipation of the decommissioning of the 688 class fast attack class submarines that were to be decommissioned and replaced by the Virginia Class submarines.[83]

Second, cooperation begins to stumble at the policy level. Interest of the principal stakeholders, expressed in RBT as High Level Objectives and reflected in the Critical Success Factors needed to ensure that the HLOs are met, proved to be the limit of cooperation. This concept is clearly reflected by the events surrounding the summit meeting in the spring of 2008. At that meeting, the Chief of Naval Operations and the Secretary of the Navy stated that the JMMS capability was interesting and that if it were made available, they would use it. However, the Navy did not have an operational requirement for the JMMS and that the Navy would not share the JMMS development and procurement costs with USSOCOM.[84] HLO then reflected neither a source of cooperation nor completion, but a source of prioritization for the allocation of resources. The

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[83] The cost sharing arrangement was negotiated 60-40. In the end, Navy covered the cost of the conversion as RBT would predict. Interview Bill Hicks, Deputy Operations Officer, COMSUBPAC, Honolulu HI; and CRS Report on SSGN Also in Henry Shelton, “Letter of Appreciation for CAPT William Hicks,” United States Special Operations Command, Office of the Commander in Chief, August 14, 1996. Hicks coordinated the cost sharing arrangement and was a source of cooperation and served on the OPNAVstaff and negotiate the cost sharing arrangement. He also served as Commanding Officer for USS *Bates*, a DDS capable submarine.

[84] Author interviews with Olson, October 2011, and Ellis, October 7, 2011.

critical success factor, in this case the extreme inaccuracy of cost, schedule and performance estimates indicated which stakeholder would cooperate.

Third, the Naval Sea Systems Command (NAVSEA) is one of the US Navy's five system commands. NAVSEA is an organization whose distinctive competency is to provide independent engineering design oversight and provide safety certification for the introduction of naval assets into the fleet.[85] NAVSEA is the US Navy's classification society and guarantees that the ship or submarine meets certain technological specification that it can operate under the anticipated conditions of combat, in effect providing the US Navy with the guarantee that the naval assets can go to sea.[86] Germane to this study are two concepts: the SUBSAFE program and the P9290, the NAVSEA instruction that governs the certification of deep submergence systems. These two items have a fundamental influence on the purpose, perspective and culture of NAVSEA. They are fundamentally different than the purpose, perspective and culture of Naval Special Warfare and USSOCOM.

In the case of the former, the SUBSAFE program began in June of 1963 after the loss of the USS *Thresher* (SSN-593), a nuclear submarine and the first of

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[85] Author interviews with Gard Clark and Mark Paulowski. Also see "About NAVSEA," U.S. Navy, Naval Sea Systems Command, http://www.navsea.navy.mil/AboutNAVSEA.aspx (accessed Aug 29, 2001).

[86] In the private sector, owners of sea going vessels insure their ships and cargo to limit their financial liability in the event of a ship loss at sea. The US Navy self-insures its vessels not only against financial loss, but also against political liability in that the service members serving aboard the vessel are for the most part US citizens. With the adoption of nuclear power as the source of power for the submarine force, the technological improvement that allowed the submarine to perform independent operations, the sensitivity over safety increased dramatically. Author interview with Hilarides. For more detail on the impact of nuclear power into the submarine force, see Owen R Cote, *The Third Battle : Innovation in the U.S. Navy's Silent Cold War Struggle with Soviet Submarines*, Newport Papers (Newport, R.I.: Naval War College, Center for Naval Warfare Studies, 2003).

its class, with all hands. As a direct result of the incident, the Navy established a submarine design safety certification criterion with the "purpose of the SUBSAFE Program [being] to provide maximum reasonable assurance of watertight integrity and recovery capability."[87] The certification process emphasized two categories of documentation: quality drawings and data, whose definition is self-evident; and Objective Quality Evidence, which is a statement of fact that can be measured, quantified and verified.[88] The principal cultural byproduct of the SUBSAFE program is a culture of safety, founded in engineering design failure and based on non-negotiable safety requirements and personal accountability from technical warrant holders within the bureaucracy.[89]

In the case of the later, the purpose of the certification process governed by P9290 is to "provide maximum reasonable assurance that a material or procedural failure that imperils the operators or occupants [of a DSS] will not occur."[90] The certification process relies on objective quality evidence and attempts to prevent unsafe conditions from occurring. Additionally, the certification process attempts to ensure that all personnel are recoverable after any incident, with the exception of a primary pressure hull boundary.[91] Like the SUBSAFE program, the history is written in failures. One of the failures germane to this case is the loss of five Underwater Demolition Team members, and legacy unit from which the SEAL Teams are drawn, in the USS *Grayback* (574), a

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[87] See *P9290*. In essence, this means that the submarine will not flood, if it does, the flooding can be stopped, and if it can't, the submarine can recover to the surface. Author interview with Gard Clark.
[88] *P9290*.
[89] Ibid. Author interviews with Gard Clark and Hillardes.
[90] *P9290*.
[91] Ibid.

ballistic missile submarine converted for Special Operations use in 1967, when a vacuum was drawn while conducting manned diving operations. The instruction covers all deep submergence systems, to include the Dry Dock Shelter. Again, the NAVSEA deep submergence of safety prevails.

In the context of Resource Based Theory, the US Navy created NAVSEA for the purpose of ensuring performance and safety across the entire fleet. The particular concerns for the submarine force and Deep Submergence Systems: Do not let the boat sink, do not let the nuclear reactor blow up, and recover both boat and personnel if it does! The Distinct Competency required to fulfill this goal is technical control. The US Navy's HLO of an affordable functioning asset is reflected in the critical success factor of "safe nuclear submarine operations." This combination of HLO and CSF create a NAVSEA culture of zero risk tolerance and an organizational structure of technical independence.[92] When NAVSEA says that it is safe, it functions as the Navy's insurance policy![93] It also produces a culture clash of the first magnitude.[94] Again, from the theoretical perspective, the HLO and CSF serve as the end to cooperation and become the source of conflict.

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[92] Phone interview, USSOCOM PEO Maritime, December 2011. Also see *P9290*. The concept of independent technical review is not unique to NAVSEA. After the *Challenger* disaster occurred in NASA's shuttle program, NASA visited NAVSEA and adopted the technical oversight organization independent of the operational requirements model for their purpose. Email from CAPT Norris (ret), former NAVSEA official and Executive Assistant to the Secretary of the Navy's Special Assistant for Undersea Warfare. The same concept was adopted by the UK after the catastrophic inflight incident with a Nimrod over Afghanistan in 2006. See Charles Haddon-Cave, *The Nimrod Review* (London: House of Commons, 2009).

[93] Author interview with Hilarides.

[94] Ibid. Also from Author interview with Rich Blank, Washington, DC, November 15, 2011. CAPT Blank was former USSOCOM PEO Maritime; Author interview with Tim Kelly; Todd DeGhetto, phone interview with author, December 6, 2011; Author interview with John Green, July 28., 2011.

USSOCOM does not possess a systems command to provide design certification, technical expertise, identification of safety risk, program management, and acquisition expertise.[95] Although USSOCOM retained the authority and capability to conduct its own program management under the supervision of its own acquisition executive, USSOCOM did not create the engineering capacity because they did not want to duplicate the capability resident with services, germane to this study, of the Navy's Naval Sea Systems Command.[96] To access the capability, NSW and USSOCOM fund the office codes within NAVSEA that specifically address NSW programs: PMS 399, a position coded for a qualified submarine officer, for SOF Undersea Mobility Systems operating under PEO SUBS and NSW PMS, a position coded for a qualified NSW officer, for other maritime systems operating under PEO Littoral and Mine Warfare.[97]

As discussed and illustrated previously, USSOCOM possesses the authority and capability to manage acquisition programs under the supervision of its own acquisition executive, PEO Maritime for the purposes of this study, to procure validated special operations-peculiar requirements to be used in combat.[98] In this capacity, USSOCOM, by legislation, is specifically directed to "ensure the

[95] See charts in Chapters 2 and 3.
[96] Author interview with RADM Richards. Also see chart, chap 2.
[97] Author interview with Gard Clark. Also Author interview with Pat Sullivan, Norfolk, VA, July 2011. CAPT Sullivan is the former PMS NSW. Author interview with Tom Gajeski, Washington, DC, January 28, 2011. CAPT Gajeski is the PMS NSW.
[98] USSOCOM validates all SO-P requirements below level of ACAT1. This program is an ACAT1 program and as such validated by the JROC. The AMS study as part of ARAP validated this capability as an enduring requirement.

combat readiness of forces assigned to the special operations command."[99] Risk is a factor in every decision, and "ensuring combat readiness" is no exception in that to make the decision, the identification and acceptance of risk is germane to forces, platforms and programs. Special Operations are inherently risky operations. At the operational level of war, the employment of SOF means the forces are designed to accept increased risk to forces in an effort to reduce the risk of mission failure; the commander responsible for ensuring combat readiness cannot have a zero risk mentality. USSOCOM is not preparing and ensuring the combat readiness of an entire fleet to be employed in a near continuous basis for multiple functions but a small, in this case singular platform, to be used for specific high risk tasks that are limited in scope.[100] That is in fact what Congress had funded.[101]

The tension point arises when USSOCOM's HLO of an "affordable functioning asset," reflected in a CSF of "effective SOF capability," is to be executed by PMS 399, essentially serving as an agent for two distinct organizations with different HLOs and CSFs! The cultural clash occurs at this exact point and is heightened by the further obligations of a program manager balancing acquisition regulations and law, engineering and budget bureaucracy,

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[99] Title 10, section 167, para (E) Authority of Combatant Commander, subpara (3a).
[100] For the theory behind operational risk, see Milan Vego, *Joint Operational Warfare: Theory and Practice* (Newport, RI: Naval War College Press, 2007).
[101] See description in GAO reports 2003 and 2007. Also found in appropriations language. For FY 2003, 2005, and 2012, see footnote 51. Also see U.S. Congress. House, *Report of the Sommittee on Armed Services, House of Representatives: National Defense Authorization Act for Fiscal Year 2007*, 109th Cong., 2s sess., (May 5, 2006); U.S. Congress. Senate. *Hearing before the Committee on Armed Services, United States Senate: Department of Defense Authorization for Appropriations for Fiscal Year 2010: Part 5, Emerging Threats and Capabilities*, (June 18, 2009).

contractor performance, and sponsor's and user's changing requirements.[102] Even if the program manager is part of USSOCOM, as in the case of PEO Maritime, or part of NAVSEA and funded by USSOCOM, as in the case of PMS 399, the decision for risk tolerance is up to the sponsor.

Analytically, the decision by OSD – CAPE to reduce the Deputy Secretary of Defense's \$1.2b plus up for the JMMS program by \$500M right before the release of the request for proposal to industry—which included pricing in the ability to construct the platform with a fixed priced contract in complete adherence to P9290, therefore presenting no cost risk to USSOCOM[103]—restricted USSOCOM's ability to achieve his HLO of an affordable and functioning asset.[104] As previously discussed, the demands from the other service components and the ongoing operations in Afghanistan precluded USSOCOM from dedicating more resources to the program.[105] Thus to achieve the HLO, USSOCOM cancelled the program in August 2009[106] and NSW introduced the

[102] Brown, *Introduction to Defense Acquisition*, 5. Regarding the changing requirements of the sponsor and user, the early stages of phase 2 clearly reflect this issue. See GAO 2003. The observation of changing user requirements that the sponsor then advocates for is a theme repeated throughout this study. This observation is reflected by all those interviewed for this study in the acquisition community. Also in phone Author interview with DeGhetto.

[103] The technical specification for the JMMS was a 1,500-page technical specification that leveraged every lesson learned with the ASDS experience. It was drafted with a fixed requirement and contained the concurrence of the NAVSEA technical codes. Author interviews with Gard Clark and DeGhetto.

[104] Author interviews with Olson (May 10, 2011), Ellis (October 7, 2011), Deghetto, and Green (July 28, 2011).

[105] Author interview with Eric Olson, Oct. 23, 2011. Olson personally made the decision.

[106] In the acquisition world, debate exists whether or not USSOCOM's decision to cancel an ACAT1D program was the right decision. One alternative acquisition tactic could have been to have industry identify costs through a flat price request for proposal. From this point, assessment could be made as to where the scope of the program could have been narrowed to, as well generating a greater opportunity to meet the desired IOC dates. Author interview with Gard Clark.

innovative idea of the S301 as an alternative means to achieve the HLO. The NSW and USSOCOM alternative, presented to fulfill the unyielding bureaucratic imperative to ensure the most basic of distinct competencies, generated two tension points that reveal the culture clash and conflict of interest between the Navy and USSOCOM's HLOs and CSFs.

The first tension point is the issue of certification and risk. The acceptance of risk becomes the issue for USSOCOM and NSW, given the decision to cancel JMMS due to cost constraints and the requirements being constant and targeted on the capabilities required from launch from the host platform to the target and back in order to eliminate the requirement to absorb the same hydrodynamic loads the ASDS did on the back of the host submarine. To some fundamental degree, acceptance of risk becomes a cultural issue and, in the RBT mapping model, a human resource. For SOF to be effective in a high risk operation, the Commander of USSOCOM must accept risk to achieve his HLO and see it reflected in his critical success factor.[107]

In the case of the S301, NAVSEA PMS-399 visited the manufacturer in England and evaluated that, although many items were simple alterations such as bolt replacements, the S301 could not be certified under P-9290 unless it was re-built from the ground up and modifications made ranging from fasteners, oxygen system and hull welds, and supported with objective quality evidence.[108] This

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[107] Discussions between both PEO Maritime and PMS 399 have all clearly identified the risk tolerance factor as the fundamental point where cooperation breaks down regardless of acquisition strategy.

[108] Confirmed through multiple sources. Confirmed by Author interview with Gard Clark, PMS 399, who actually made the trip. Also Author interview with RADM Hilarides, PEO

proved not to be in the interest of the owner and builder of the S301 and did not occur.[109] Although NAVSEA attempted to certify the S301,[110] certain technical risks, from the perspective of the technical warrant holders accustomed to providing design oversight over nuclear submarine construction or who framed the problem in the context of the JMMS, were not acceptable and non-negotiable. For example, Teflon tape on a joint in an oxygen system, which is acceptable in a recompression chamber, was not acceptable for the S301, or the number of bends in an Oxygen lines were required to have a certain limit.[111]

In the end, NAVSEA did not certify the S301. USSOCOM and NSW were faced with a choice: let the SEAL operators dive and test the S301 that had been leased or adhere to NAVSEA's decision prohibiting US Navy personnel from operating the S301. In the end, the result of a meeting between NAVSEA PEO SUBS and the Commander USSOCOM was that nobody in the US government would certify for the Commander of USSOCOM that it was safe to put operators in the S301.[112] USSOCOM relented and signed a Memorandum of Understanding outlining the responsibilities of the responsibilities of NAVSEA and USSOCOM, focused on the limits of each organization's authority with respect to dry combatant submersibles, and in the process driving USSOCOM and NSW to move further out and along a different path.[113]

SUBS who deployed CAPT Clark. Also Brett Phaneuf, phone interview by author, October 7, 2011. Mr. Phaneuf is the builder and owner of the S301.
[109] Author interview with Brett Phaneuf.
[110] Author interviews with Gard Clark and Deghetto.
[111] Author interview with DeGhetto.
[112] Author interview with Hilarides.
[113] Author interview with Olson, October 23, 2011.

Although flexible, P9290 is non-specific: it presents opportunity for cost growth unless the requirements are narrowed down. As an example that is actually part of the postscript, the technical specification in the program of record that follows the S301, the technical specification document approved by the NAVSEA technical warrant holders is 200 pages vice the 1,500 that comprised the JMMS technical specification.[114]

The related issue of non-NAVSEA certification moves to center stage as the segue to the second tension point. The argument is that NAVSEA as the only organization that can certify a combatant submersible with a lock-in and lock-out capability appears intractable. In part it is related to the fact that in this story, the American Bureau of Ships, or ABS, did not certify the S301. In part, it is clear that ABS has never certified a submersible with lock-in and lock-out capability intended for use under combat conditions and, arguably, that is a clear domain for NAVSEA. It is also clear that NAVSEA and ABS interacted in some form regarding the certification of the S301.[115] NAVSEA is not uniquely qualified to certify submarines and submersibles. Again, related to the postscript and the follow-on program, Germanisher Lloyd is the certification society whose technical standards are globally accepted and classifies and certifies manned submersibles and military submarines. But does the United States and the United

[114] Ibid.
[115] Multiple sources have commented on this in both background and for attribution and is clearly sensitive. Whether ABS asked for help or ABS received "help" is not germane to the study. What is germane is whether the Navy or the US Government is willing to accept a non-NAVSEA certification for something that operates in the vicinity of a nuclear submarine.

States Navy need or want to accept outside certifications for their systems that are intended for use in combat conditions?

The second tension point is focused on the right DDS and the potential bubble from an implosion. Remember that the epiphany for the commander of USSOCOM after the impact of the OSD-CAPE decision was that the right hanger in the DDS would provide flexibility to the program. That is, the DDS, designed, constructed and operated in accordance with P9290 as a deep submergence system, would make whatever was loaded and operated inside it less important, in this case, the S301 shallow water dry combatant submersible that had a limited operating profile.[116] However, NAVSEA reasoned that the S301 was uncertified as a combatant submersible, because ABS was not authorized, let alone capable of certifying a combatant submersible, thus requiring the Navy to accept some risk of an implosion during diving operations in the vicinity of the submarine.[117] Such an implosion would generate an air bubble, causing submarines to break apart and sink. This would thus require the Navy to accept some risk, in violation of the cultural foundation of zero risk deeply ingrained by the principals and experience of the SUBSAFE program. This acceptance would be in direct conflict with the critical success factor of safe nuclear submarine operations.

The resolution of these two tension points that brought to light a deep cultural difference and a direct conflict of interest was the Memorandum of Understanding between USSOCOM and NAVSEA. The line drawn fell to functional lines of each organization. NAVSEA would preserve the right to fulfill

[116] Ibid.
[117] Author interview with Hilarides.

its distinct competency and meet the critical success factors and high level objectives of the Navy. USSOCOM on the other hand preserved the right to exercise its legislated authority and determine the performance parameters and top line objectives of the special operations peculiar capabilities and set the critical success factors for his component forces. However, what appears lost in this stand-off is the critical success factor of an interoperable and effective undersea capability between SOF and the Navy that fulfills the high order objective of the Geographic Combatant Commander and the National Command Authority that generates an option to resolve a problem with the most clandestine undersea capability that accesses denied and sensitive space in the maritime domain.

The Influences Endogenous to DoD: Office of the Secretary of Defense

The Department of Defense is not monolithic. It is an enormously large and complex organization. It is controlled by politically appointed executives that are nominated by the administration and confirmed by the Senate. It is managed by executive-level civil servants and operated by civil servant functionaries. It is led by the Secretary of Defense but dominated by the military services. Its operational arm contains combatant commands with their assigned forces provided by the military services. Independent field activities provide supporting capabilities. Each of these organizations has its own bounded rationality and procedures for perceiving and acting on any given issue or task through a series of procedures and action channels. Tension over centralized control held in the Office of the Secretary of Defense (OSD) is balanced by distributed exercise of authority through the military services, combatant commands, and field activities granted in either legislation or regulation. Specific to this study is the ability of the United States Special Operations Command to leverage its unique authority to develop and procure special operations peculiar equipment.[118]

In Resource Based Theory terms, this study has identified DoD's HLO as a complex reflection of this environment, articulated as integrated platforms and capabilities that support a national and acquisition strategy. In this environment, acquisition is dominated by the services that focus on overall size and composition of force structure relative to their sister services that supports their service based operational concept.[119] Each of the services compete for a share of the multi-billion dollar DoD budget that is centrally controlled by OSD and organized by ten major force programs that categorize all capabilities regardless of service. USSOCOM is small and, as previously established, controls Major Force Program Eleven. USSOCOM controls 1.6% of the DoD budget.[120]

Historically, Special Operations Forces were organized underneath the services and supplemented their major operating concepts and as such, held *precarious value*, that is, their "goals or missions within the (service) organization that are in conflict with, or in danger of being overwhelmed by, the primary goals or missions of the (service)."[121] Today, Special Operations hold an *assured value*. They no longer function in an ad hoc fashion within a larger service-dominated

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[118] This concept was previously laid out in great detail in Chapter 2 in the organizational and bureaucratic paradigm.
[119] Author interview with Mike Lumpkin, Washington, DC, November, 15, 2011. Mr. Lumpkin is ASD SO/LIC at the Pentagon.
[120] Author interview with Olson, April 2011.
[121] Marquis, *Unconventional Warfare.*

organization enabling its performance, but are organized as an independent organization that responds to theater- and national-level priorities across the spectrum of conflict to generate options for the national and theater level leadership, often enabled by the general purpose forces.[122]

Special Operation's assured value, won through USSOCOM's organizational position and the operational success of its component forces in the current strategic environment,[123] functioned relatively independently with respect to procurement of special operations-peculiar requirements below ACAT1, the vast majority of USSOCOM's procurement projects, because of the authority delegated to USSOCOM by the JROC. At the Major Defense Acquisition Program (MDAP), USSOCOM endured the same level of oversight and suffered the same decision process requirements as any other MDAP.

However, the Secretary of Defense and the Office of Secretary of Defense were reactive in nature. After all, USSOCOM's ACAT1 program is small relative to those programs of the services. Congress expressed concern over the programs "troubled history" and DoD failed to designate it an ACAT1 program. In 2001, USSOCOM, recognizing that the R&D expenditure on the program approached the ACAT1 threshold, proposed elevation to ACAT1, to which DoD declined for the second time. In fiscal year 2003, it took Congressional direction and restriction on appropriated funds to motivate DoD to conduct the required

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[122] Although evidence exists to support this claim, ADM Olson cautioned against thinking that the future is assured due to service domination in the defense establishment. Author interview with Olson, May 2011.

[123] Author interview with Doug Gregory. Greg Lankler, phone interview by author, November 26, 2011.

oversight of the troubled program, finally designating it an ACAT1C program in April of 2003.[124]

As a consequence of ACAT1C and later ACAT1D designation[125] and the statutory obligations DoD incurred, OSD turned very involved and supportive of the program and responded when USSOCOM needed support. In the end, this support and positive decision occurred at multiple levels[126] and at multiple times, which created the opportunity for USSOCOM to achieve decision and reach its procurement objectives. However, it was also OSD that derailed USSOCOM from achieving its objectives and, in the end, set the stage for USSOCOM's continuing struggle to fulfill the Special Operations Peculiar requirement.

Several instances surrounding inflection points in the program stand out to substantiate the claim. After ACAT1 designation in the spring of 2003, USD AT&L, the statutorily mandated MDA, let the program continue. ASDS contributed to creating support as well. Episodic success as an operational prototype provided the Secretary of Defense, part of the National Command Authority, with the opportunity to judge the value of the capability.[127] In between IOC and the announcement of the ARAP, USD AT&L, the MDA, supported USSOCOM's requests to re-classify procurement funding into RDT&E funding

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[124] GAO 2003.

[125] ACAT 1C designation in this instance referred to R&D funding expenditure surpassing the $365M level in 2000 dollars. ACAT1D refers to DoD designation under discretion of the SecDef, in this case because of Congressional interest.

[126] Author interview with LTG Fridovich.

[127] Certain aspects of the history of ASDS remain classified. However, NAVSEA certified ASDS for operations in July of 2003 and USSOCOM declared Initial Operating Capability in November 2003. ASDS was not decertified until October 2005 by NAVSEA and USSOCOM did not rescind Fielding and Deployment until May of 2006. After the AIP, USSOCOM declared it operational again in July of 2007.

in support of USSOCOM's effort to retain the funding levels to fix the boat. USD AT&L again supported USSOCOM in September 2005 when he issued his memo authorizing the ARAP and endorsed the USSOCOM decision to fix ASDS. As part of the ARAP, DoD verified the capability gap with the Alternative Material Study (AMS), validating at the DoD level the enduring requirement for a dry combatant submersible.

DoD support to USSOCOM continues in 2008. After the disappointing results of the "Summit" meeting with the Secretary of the Navy and the Chief of Naval Operations where the Navy backed away from supporting USSOCOM,[128] the Deputy Secretary of Defense provided a $1.2B plus up to the USSOCOM Table of Allowance to fund the JMMS. Finally, after OSD CAPE[129] withdrew $500M from the program, the Secretary of Defense approved USSOCOM's change in strategy to a family of wet and dry combatant submersibles, the enabling platform of a modified Dry Dock Shelter to accommodate the family of submersibles, and most importantly the exception to US Title 10 code, section 7309 authorizing the use of foreign shipyards to fill the special operations peculiar requirements as the Commander of USSOCOM deems appropriate, accompanied by a personal notification to Congress. In effect, DoD opened the door and left USSOCOM to deal directly with Congress over disruption in the defense establishment.

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[128] Had the Navy agreed to share the cost of development of the JMMS by identifying a naval requirement, the Navy would have risked picking up the tab as a service generic platform. The Navy N8 advised against that outcome. Author interview with Gard Clark.
[129] OSD-CAPE is the principal advisor to the Secretary of Defense for Cost Assessment and Program Evaluation. Their charter is to evaluate the efficacy of the funds allocated for a program.

The Assistant Secretary of Defense for Special Operations and Low Intensity Conflict (ASD/SOLIC) is a creation of the Nunn Cohen Amendment to the Goldwater Nichols Legislation that created USSOCOM. The ASD/SOLIC reports to the Under Secretary for Policy (USDP), not USD AT&L, and is the principal advisor to the Secretary of Defense on overall Special Operation and Low Intensity Conflict policy and resource matters. In this story, ASD/SOLIC does not appear to have a direct impact on USSOCOM's effort to procure a DCS capability. ASD/SOLIC participates in the normal staffing process for the Planning Programming Budget and Execution Process and defends USSOCOM's priorities within OSD.[130] Additionally, ASD/SOLIC has a role in the Joint Capabilities Integration and Development System that validates and prioritizes operational requirements.

In the normal staffing process, he operates behind the scenes and stays attuned to resource allocation decisions and assists USSOCOM by linking the multiple levels of the organization required to achieve a decision.[131] As an example and although unconfirmed, ASD/SOLIC appears to have played a substantial role in assisting the Commander of USSOCOM to elevate the issue of the loss of Navy support in the Summit meeting to access the Deputy Secretary of Defense and persuade him to plus up USSOCOM's procurement account by $1.2B to fund the JMMS. Additionally, the Office of ASD/SOLIC provided Rapid

[130] Author interview with Lumpkin.
[131] Ibid.

Research and Development funding to Promare via the advocacy of NSW to assist in the construction of the S301.[132]

The Influences Exogenous to DoD: Congress (this is the really interesting one)

According to American Civics, Congress, as representatives of the people, is the ultimate holder of sovereignty. It is clear that they know it! The pace of Washington in dictated by the Congressional budget cycle[133] and at some point, all things must fit into congressional favor to exist. USSOCOM's and NSW's Dry Combatant Submersible capability is no exception. Congress is organized and operates around committees. The leadership of the committees set the agenda and the tone for deliberations. Leadership positions are earned by seniority and as such, the leadership has had time to see the evolution of a program and in the process gain a deep insight into that program. Additionally, the individual members establish a relationship with the organizations involved, in this case USSOCOM.[134]

The role then of Congress as representatives of the people and principal stakeholders in the acquisition of military equipment is that of oversight over the

[132] Author interview with Guy Kemp, San Diego, CA, July 28, 2011. Mr. Kemp is from NSWG-3. Also Author interview with Mr. Brett Phaneuf of Promare.
[133] Author interviews with Lumpkin and Gregory. Also Author interview with Mr. Lankler, Managing Director Mercury Clark and Weinstock, former professional staffer for House Appropriations Committee with USSOCOM portfolio.
[134] Author interview with Kent Clark, Washington, DC, November 15, 2011. Mr. Clark is a Professional Staffer, Defense Appropriations Committee.

executive branch. Congress's principal tool is that of the purse.[135] In the oversight function, Congress's HLO is that of equipping the nation's military with a competitive advantage, ensuring that the funds are well spent and effective investments, and that their local constituents are satisfied.[136] The CSFs that ensure that those HLOs are met are the cost, schedule and performance of the dry combatant submersible, the competitive advantage it provides the county and its contribution to an effective special operations capability.

The evidence in this study reveals that Congress acted according to the hypothesis. The specific committees of interest intervened with DoD and USSOCOM when the cost, schedule and performance data revealed a problem with the program and when the performance shortfall affected the overall capability of the platform. Although budget numbers are reviewed every year by Congress, several dates in this three platform case reveal substantial intervention by Congress to get USSOCOM the help it needed to develop the capability.[137] Overall, Congress had a positive impact on the outcome. Several items illustrate the point.

First, Congress intervened, and used the word "intervened,"[138] and directed DoD to make the dry combatant submersible an ACAT1D program. Congress intended to ensure that DOD would provide USSOCOM with the statutory assistance and support to meet key performance parameters and move

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[135] Ibid.
[136] Author interviews with Doug Gregory and Kent Clark.
[137] Author interview with Lankler.
[138] GAO Reports 2003 and 2007.

the program to completion.[139] The program was not meeting Congress's CSF. DoD was slow to designate it an ACAT1D, but maintained that program designation due to congressional interest. To communicate that the congressional interest remains, the FY-12 draft appropriations bill contains language from Congress requiring that the follow-on platform maintain an ACAT1D designation.

Second, in the financial oversight role, Congress intervened several times by restricting funding until decisions were made to stabilize the program after extreme cost overruns. This occurred in FY 2002, 2004, 2006 and 2010. Yet at the same time, Congress let USSOCOM ride with its acquisition program. After dramatic mechanical issues, especially in between the IOC in 2003 and the decertification in 2005, Congress regularly re-designated funds from procurement funds to RDT&E funds to ensure USSOCOM maintained control of the resources. Finally, in the midst of repeated cost increases that broke Nunn – McCurdy, taking the program from $70Million to $885M, Congress maintained its unyielding support.

Third, the proposition that the leadership in the congressional committees, both the chairman and the ranking minority member, intervene for the benefit of local constituents is seen in both earmarks and their follow-on committee plus ups. For example, since 2000, Congressman Young of Florida and chairman of the House Appropriations Committee has successfully advocated for the appropriation of unfunded requirements in the amounts of $618M for MacDill AFB, of which $147M is directed straight at USSOCOM.[140] Although not specific

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[139] Ibid.
[140] Handout from Chad Maxey, HAC Military Legislative Fellow.

to the case, it is support to USSOCOM that spills over to other issues, other days and other platforms. In the Senate, Senator Inue, for years either the chairman or the ranking minority member of the Senate Armed Services Committee, was influential in providing military construction funding for Hawaii, the home port of the ASDS. The leadership become advocates for USSOCOM and champion their causes within the committee that they control or influence related committees because of their leadership positions.[141]

Professional staffers from the six select committees and four subcommittees described earlier are also influential in determining Congressional support to USSOCOM. They have longevity over issues, although rarely to the same level as the committee leadership. They understand the issue and maintain access to the leadership or the members. An example of this is the case of the ASDS in phases two and three when Congress suggested that the contractor needed to absorb some programmatic and cost risk by shifting the contract mechanism from a cost plus to a fixed price contract. Additionally, they have time to understand the impact of the previous decisions and appropriations and can see the outcome and can then re-apply the lesson. For example, USSOCOM, operating outside the standard requirements and acquisition systems, creates the effect of bringing technology to the field rapidly as operational prototypes with its unique authorities and structure as Congress intended. Congress then sees the impact of that earlier legislative action and creates the opportunity for the general purpose forces to do the same through an application of the lesson learned with

[141] Author interviews with Lankler and Gregory.

special operations forces when it funded Military Rapid Acquisition Processes within each of the services.[142]

The Influences Exogenous to DoD: Private Industry

The defense industry operates under the unique condition of monopsony, where the government is at times customer, regulator and competitor.[143] The industry responds to a demand signal that is based on a series of factors that are mainly political and based on a perceived need for security. As such, the government defies economic theory and is not price sensitive.[144] Historically, industry fills one of the points in the iron triangle in the defense establishment. Industry builds what DoD requires and what Congress pays for. As such, the relationship is complex. But private industry is still motivated by standard business motives: to realize profits, to improve market position, and to increase brand strength.[145] In Resource Based Theory terms, industry must perform the CSF of execution of cost, schedule and performance to achieve its HLOs. Yet the conduct by the prime contractor in the story of the ASDS and the outcome of the program make this assertion counterintuitive.

The actions undertaken by industry partially support the study's hypothesis. When looking across all three platforms, tier one industry partially

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[142] Ibid.
[143] Author interview with Dennis Gallimore, Charolettesville, VA, August 3, 2011. At the time, Mr. Gallimore was the Program Manager from NNS that NGC applied to the ASDS program. He also had been the DDS planning yard and had suggested to CNSWC to consider a platform inside the DDS in the mid 1990s.
[144] See Chapter 2. J.R. Fox, *Arming America: How the U.S. Buys Weapons* (Cambridge, MA: Harvard University Press, 1974) and Jacques S. Gansler, *The Defense Industry* (Cambridge, Mass.: MIT Press, 1980).
[145] Author interview with Lumpkin.

attempted to adapt its core capabilities, but only when it was forced to do so by market forces or by direct intervention by varying organizations within the government. What is clear is that the large tier one prime contractor and the smaller tier two subcontractor responded differently to the demand signal sent by NSW, USSOCOM, and NAVSEA.

Northrop Grumman (NGC) inherited the contract when it purchased Westinghouse in 1997. Originally an airplane builder, consolidation in the defense industry at the end of the Cold War created a large corporation whose principal targets were large major defense acquisition programs belonging to the services. In the continuing consolidation trend, NGC bought Newport News Ship Building and later Ingalls Ship building[146] to add to its core competency as an airplane builder and brand itself as an integrated defense company that included a core competency with an established ship building brand and therefore open itself up to the opportunities presented by the large navy ship building contracts. In the undersea arena, its only competitor would become General Dynamic's famed Electric Boat Division.[147]

NGC evolved into its eventual market position as one of the two recognized ship builders in the United States. However, it could not execute the ASDS program and the NGC position helps explain the direct and negative impact NGC made on USSOCOM's procurement objective. At first, NGC did not

[146] "Our Heritage," Northrup Grumman Corporation, 2011. http://www.northropgrumman.com/heritage/index.html (accessed October 26, 2011).
[147] Ibid.

have the skills and the resources to put against the contract and created a mismatch between capability, demand and resources.[148]

Later, NGC did not place their priority effort on USSOCOM's ASDS project until they were forced to do so. As a large company, NGC held the bargaining power. ASDS, even with its cost overruns and ACAT1D status, was a small fraction of NGCs revenue stream from defense acquisition projects.[149] As a result, NGC did not put its best people against the contract until NAVSEA pressured them to bring a program manager with the technical rigor and experience from Newport News Shipbuilding to turn the tide and construct ASDS in 2005.[150] NGC's bargaining power relative to USSOCOM shifted when USSOCOM linked ASDS's hydraulic problem to a larger issue of system reliability of NGC's products across USSOCOM's air platforms.[151]

In the early stages of phases one and two, contractor behavior is attributed as one of the significant factors that generated the dramatic shifts on the cost, performance, and schedule CSF. The argument is that the contract strategy of a cost plus contract created the condition for NGC to not perform with a sense of urgency or competence.[152] However, there is also an argument that says the government failed to communicate its requirements to industry. The original

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[148] GAO report 2003.
[149] "Our Heritage," Northrup Grumman Corporation, 2011. http://www.northropgrumman.com/heritage/index.html (accessed October 26, 2011). Also see NGC's income statement – $33 B in 2008. Available at "Financial Info – Fundamentals – Annual Icome Statement," Northrup Grumman Corporation, http://investor.northropgrumman.com/phoenix.zhtml?c=112386&p=irol-fundIncomeA, (accessed December 8, 2011).
[150] Author interview with Gallimore. Mr. Gallimore was the technical expert NGC brought to the project in 2005.
[151] Author interview with Olson, November 2011.
[152] GAO 2003.

contract was awarded to Westinghouse on the basis of being cheap. The government bought a boat that was not shock hardened and then the government came back and changed the requirements. With any change, there is a cost paid in price and time.[153] Additionally, building a complex developmental submersible is radically different than building a submarine. Programmatic and technical risks exist because it is developmental. The less developmental, the more the risks can be shifted toward industry. This concept was clearly understood, and both NAVSEA and USSOCOM attempted to mitigate the programmatic risk with the JMMS when they developed the 1,500 page technical specification to clearly identify exactly what was being bid and the requirement fixed.[154] The more specific the RFP, the less industry can impact the outcome.

Communication between industry and the government becomes essential. The objective for industry is to find out what requirement is actually being competed and to shape the attributes of the system toward what the individual company already owns so they can adapt it, create a bit of a pull from the program sponsor to identify what the program sponsor really needs, all without tipping their hand to competitors. The objective is to make the next down select for the next phase of competition.[155]

This strategy applies to both tiers and is clearly demonstrated in the story of the DCS. Discussions regarding the nature of the JMMS requirement and design took place over time. Additionally, the ARAP and Integrated Product

[153] Author interview with Gallimore.
[154] Concept corroborated in Author interviews with Pawloski, Kemp, Hilarides, Carlson, and Gard Clark.
[155] Author interview with Gallimore.

Team became a venue for industry to understand the issues with the ASDS in a means to broaden the potential supplier base as well as to provide industry with insight into the technical issues in an effort to reduce the uncertainty surrounding the JMMS RFP.[156] The concept is applied to the smaller company introducing a new concept into the process. Promare's Mr. Brett Phanoef spent time with NSWG-3 describing the S201 system that Promare had already built and operated with the Office of Naval Research as a platform to test developmental technology. Through the discussions, Promare was able to understand and clearly shape NSW's articulation of their operational requirement and then build the S301, which was eventually leased by NSW to assess its military utility.[157]

Subcontractors, tier two firms, and foreign producers provided a means for USSOCOM and NSW to alter the bargaining power of the prime contractor. We see this with the systems that experienced technical difficulties and proved to be the source of significant cost escalations. In these cases, NAVSEA and NSW contracted directly to the subcontractors and other outside service providers to break a logjam and introduce analysis and new technology into the program to replace the failed systems, such as the battery and the hydraulic reservoir.[158] Additionally, the introduction of Promare as a foreign contractor and the American Bureau of Shipping as an alternate certification agency was intended to alter the status quo and generate a new path to access a dry combatant

[156] Author interview with Pawlowski.
[157] Tom Carlson, phone interview by author, August 3, 2011. Also Author interview with Kemp. The Sequence of events with Promare corroborated in Author interviews with the two. CAPT Carlson was former Commodore of NSWG-3 during the discussions.
[158] GAO report 2007 and Author interview with Mr. John Green, Feb. 17, 2011

submersible by introducing new technology and providers into the discussion and widen the industrial base.

Conclusion

This chapter examined Resource Based Theory's ability to explain this study's two fundamental research questions. First, how has the United States Special Operations Command leveraged its unique authority to influence the Department of Defense to develop and procure special operations-peculiar equipment? Second, how, when and why do the US Congress and industry intervene in the United States Special Operations Command procurement process?

One of the key findings in this chapter is that although Resource Based Theory analysis identifies distinctive competencies that should lead to competition between service components, USSOCOM and the US Navy cooperated. The explanation for this cooperation lies within the concept of linked competencies: distinctive competencies that are shared by echelon two service components that are mutually supporting. The cooperation is built through interaction of operating units of the service sub-components as they build feedback loops developing their distinctive competencies.

As shown in this chapter, this cooperation has a limit. In this case the "Summit" meeting held by the Secretary of the Navy, the Chief of Naval Operations and the Commander USSOCOM over the funding of the JMMS revealed that differing high level objectives of the Navy and USSOCOM generated a conflict of interest. The point of conflict and completion over resources occurred when the critical success factors required to meet the high level objectives of the two were both not met. The varying high level objectives proved to identify prioritization of requirements between stakeholders. Even linked competencies were not sufficient to overcome the conflict of interest represented by opposing high level objectives.

Additionally, a major impediment to USSOCOM and NSW achieving its procurement goals is found within the Navy itself, with the Naval Sea System Command, over the issues of design and safety certification. Strong cultural differences with regard to risk and conflicting critical success factors relating to operational success provide the source for intractable positions, represented by NAVSEA's unwillingness to certify the S301 under the governing deep submergence system instruction P9290.

In the wake of the NAVSEA decision, NSW's distinctive competency proved strong enough to fuel the bureaucratic imperative to take action and drive USSOCOM to continue developing and reinforcing its most basic distinctive competency. USSOCOM's HLO of developing affordable and functioning special operations-peculiar capabilities for its maritime component motivates USSOCOM to alter the special operations undersea strategy and operational concept to achieve that goal. Moreover, the USSOCOM Commander was willing to leverage his unique authorities and MFP-11 funding for this program because he was unable to satisfy his HLO with any other program.

One surprising aspect discovered in this analysis is the reactive nature of the Department of Defense. Consumed with larger and broader acquisition programs, DoD initially resisted designating the program as an ACAT 1 program. Once Congress impressed their concern multiple times and in multiple ways, DoD came around. From the point of the ACAT 1 designation and after, DoD appears to have remained above the machinations derived from the interaction between USSOCOM, the Navy and their components. With the exception of one instance of withdrawing a program and changing amount of resources, DoD provided all the backing USSOCOM requested, to include funding plus ups and authorization for exception of the law.

Of particular note is the role played by Congress. As a principal stakeholder, Congress actively pursued its oversight responsibility over the expenditure of funds and of the actions of the executive branch of government. Its HLO of ensuring the development of capabilities that provide the nation with a competitive advantage over its adversaries, combined with a concern for effective investment and employment of appropriated funds, was reflected in its actions. Congress continually stayed informed of the progress, delays and issues surrounding the dry combatant submersible program. Congress provided support throughout the life of all three platforms with their most important resource, the power of the purse. Yet, when either DoD or any of the actors involved with the development of the program, including USSOCOM, expressed concern and exasperation over the failure to achieve their critical success factor relating to acquisition programs of cost, schedule and performance, Congress restricted the funds.

Finally, industry had a dramatic impact on the outcome of the capability of the dry combatant submersible capability. Driven by their HLO of profitability and the development of brand and market position, the Tier 1 prime contractor essentially ignored the USSOCOM project until forced to do otherwise by competition or other members of the defense establishment. In the end, the change in strategy provided the opportunity to broaden the industrial base and introduce new technology and players into the market.

Chapter Five: Conclusion

This study examined three platforms of dry combatant submersibles as a means to test resource based theory's ability to answer two fundamental research questions. First: how has the United States Special Operations Command leveraged its unique authority to influence the Department of Defense to develop and procure Special Operations peculiar equipment? Second: how, when and why do the US Congress and industry intervene in the United States Special Operations Command procurement process?

Several bodies of literature provide the theoretical foundation for the military procurement process in general and the role of USSOCOM specifically. Each body of literature provides a foundational understanding to a particular aspect of the analytical model and the methodology employed in this study to answer the principal research questions. Resource Based Theory, a subset of the strategic management literature, is also introduced and tested.

This study employed organizational and bureaucratic politics models, rational choice theory, innovation and systems analysis literature, and Resource Based Theory. Organizational process and bureaucratic politics models explain the interaction of various actors within the government's organizational structure. Rational choice theory informs the strategies and actions taken by the actors that participated in the process. Innovation literature describes the process by which technology is introduced and adapted in both the military and civilian settings. Systems analysis provides the framework on which the military procurement process was established. Finally, Resource Based Theory provides an alternative view of an organization's core capacities that can inform an actor's procurement strategy and add richness to this study's ability to explain the actions of those involved in the case studies.

Resource Based Theory fits into the strategic management literature and originated in the private sector. It provides an instrument for looking at a firm and the resources under its control as a source of enduring competitive advantage. Four empirical indicators of potential sustained advantage or resource attributes are that it is rare, valuable, non-substitutable, and non-imitable. Public sector application accounts for the external justification of a public sector organization that must communicate their value to external stakeholders in order to receive appropriated funds, which drives organizations to differentiate themselves and compete for those funds. Resource Based Theory in public sector applications maintain the same four attributes but includes the additional attribute of requiring an operational concept and a linked competency to another organization that crosses organizational lines.

Testing Resource Based Theory, the study hypothesized that USSOCOM effectively leveraged its unique authorities to meet its stated procurement objective when either of two conditions are met: first, when the capability supports or improves a core competency of Special Operations Forces; and second, when the core competency shares a fundamental role of function of another military service endogenous to the Department of Defense. The findings in this study partially validate this hypothesis. Distinct competencies drive bureaucratic actions and the feedback loops used to create the distinct competency induces cooperation, but only to a point.

Applying the established organizational and bureaucratic politics literature, the study hypothesized that Congress intervened in the USSOCOM procurement process under one of three conditions: first, that the decisions affect the U.S. competitive advantage in the international security environment; second, that the military services require innovation; and third, that individual members' constituencies are at risk. The findings in this study partially validate this hypothesis but also raise the issue of congressional oversight responsibilities over the effective employment of funds.

Applying the established defense industry economics under the condition of monopsony, defense industry firms intervene in the USSOCOM procurement process under two conditions. First, tier one firms adapt their established systems to the new requirement. Second, second tier firms establish new systems that drive innovation. The findings in this study partially validate this hypothesis, but also raise the issues of changing relationships in the defense industry and that both first and second tier firms attempt to shape the requirement, whether adapting or innovating with their technology, when responding to an articulated demand.

The Reckoning - USSOCOM

In the case of USSOCOM and the principal research question, the hypothesis was partially correct. Over time, USSOCOM improved its effectiveness in leveraging its unique authorities to achieve the objective of developing and procuring a dry combatant submersible. As predicted, USSOCOM advocated for NSW's most fundamental distinct competency that meets Resource Based Theory's defining attributes of being rare, valuable, non-substitutable and non-imitable: accessing denied areas by clandestinely employing combat submersibles and combat diving techniques to infiltrate from sea, cross the high water line, move to an objective using land warfare techniques, and return back to the sea. This complex distinct competency differentiated NSW from other organizations within both Special Operations and Naval Forces. As such, the DC served as the basis for NSW's bureaucratic imperative and motivation that influenced USSOCOM and its actions.

Clandestine undersea operations, accessing denied area in the maritime domain, and facilitating access for the National Command Authority and the Geographic Combatant Commander, illustrated in the mapping diagrams in Chapter Four, are three distinct competencies resident in, or co-specific to, both the Submarine Force and Naval Special Warfare.[1] These three linked competencies generated cooperation through the efforts of the operating forces as they worked together through feedback loops, also depicted in the RBT mapping

[1] Note that the mapping diagram in Chapter Four identifies independent operations and fleet functions as distinct competencies that the submarine force synergizes to generate clandestine access in the maritime domain, all activities seaward of the high water line and the doctrinal 20 plus fathom curve.

illustration in Chapter Four, to create the most clandestine subsurface infiltration method in the US inventory and, arguably, the world.

This combined effort enhanced the rarity, value, and non-substitutability of the synergized capability. Most importantly, the cooperation generated to synergize distinct competencies serves as the basis for creating the linked competency that is, in effect, non-imitable and the source of enduring competitive advantage for the United States. Feedback loops reduced the information exchange cost between the subcomponents as they worked through specific constraints unique to each unit, discovered opportunities, and developed a path to achieve the tactical objective.

Several discoveries were made during this test. The most foundational discovery centers on the efficacy of the creation of USSOCOM itself. The fate of the dry combat submersible is unlike that of the post-World War II USS X-1 that was developed and built to fulfill the operational requirement of the Underwater Demolition Teams,[2] then diverted to the Submarine Force to fulfill Fleet High Level Objectives and later ended its career after a catastrophic fire. USSOCOM defended the program, dedicated an enormous amount of resources, and maneuvered through bureaucratic procedure and organizational barriers by leveraging the scope of its resources to develop and procure the dry combatant submersible in order to fulfill Special Operations peculiar requirements. USSOCOM's sponsorship demonstrates the reversal of the findings offered in the Holloway Report following the failed rescue attempt at Desert One, one of the principal antecedent events that caused Congress to intervene in the Department

[2] See Chapter Three.

of Defense and create USSOCOM. The report found that the nation needed something other than an ad-hoc organization to build and protect Special Operations capabilities that "are in conflict with, or in danger of being overwhelmed by, the primary goals or missions of the [military service] organization."[3] Judged against the standard of USSOCOM meeting its procurement objectives, USSOCOM only partially achieved its objectives.

Also discovered by this study is the concept that RBT can be used to create cooperation, but only up to a point. As discussed in Chapter Four, the feedback loop created to develop distinct competencies within an organization, combined with the feedback loops created to synergize distinct competencies to create linked competencies across organizational lines increase information exchange, reduce uncertainty between organizations and form the building blocks for a cooperative relationship. However, the foundation cannot be built on the distinctive competencies because, in the end, distinctive competencies define differentiation and drive bureaucratic imperative and bureaucratic action.

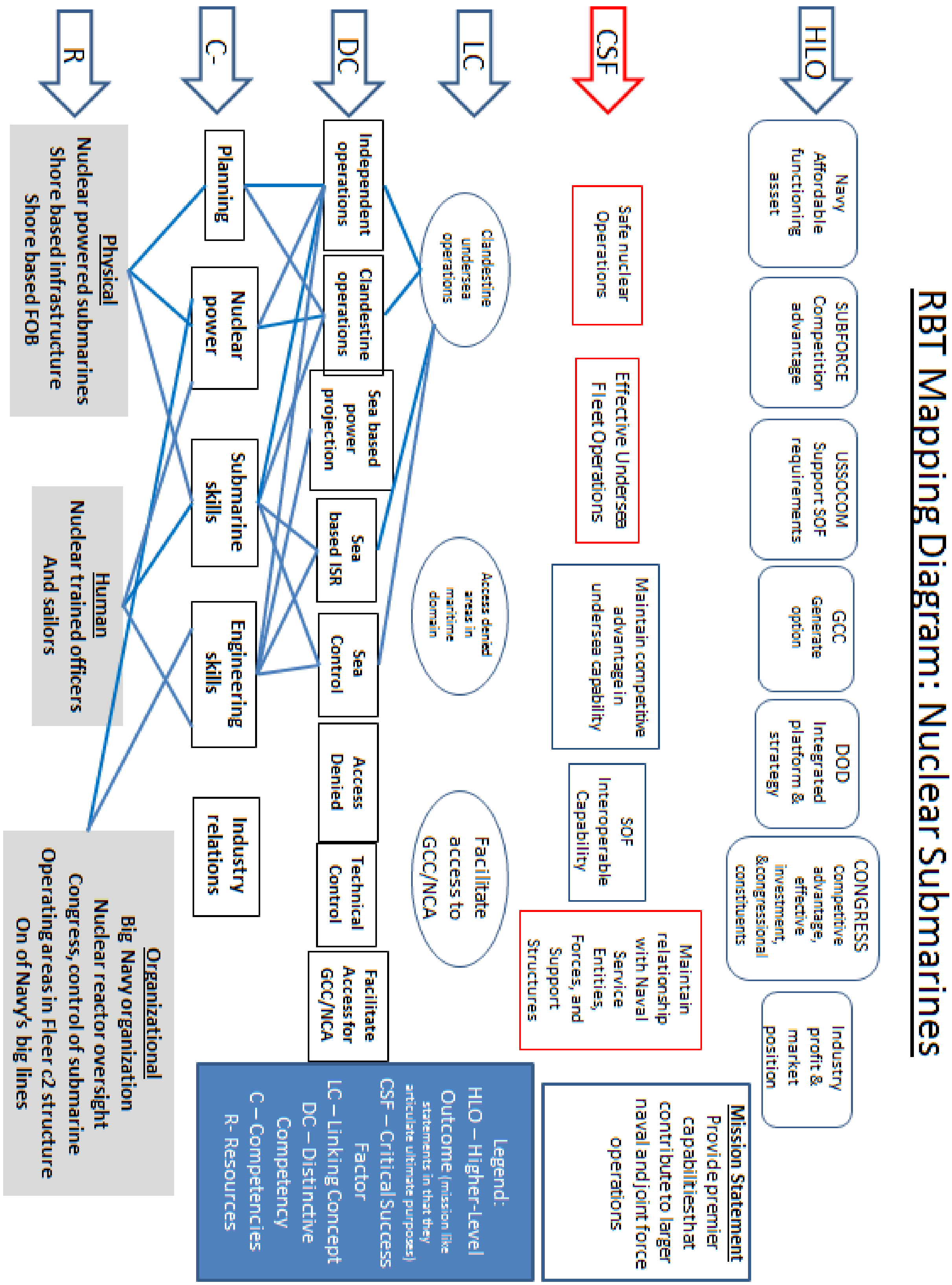
The foundation for cooperation must be built on the High Level Objectives of the principal stakeholders. As clearly demonstrated in the "Summit" meeting, the differing priorities and interest of the Navy and USSOCOM, based on differing HLOs and reflected in CSFs that were fleet or Special Operations peculiar, illustrated the point at which cooperation ended and forced USSOCOM down an alternate path in its pursuit of a dry combat submersible capability. More importantly, the Navy's claim that it did not have an operational requirement for

[3] Holloway Report. Also see Susan Marquis and the concept of Precarious Value. Finally, also see concept of Assured Value, the next inflection point in the history of Special Operations.

the platform substantiated its position that the platform remained Special Operations peculiar and hence forced it to be funded entirely from MFP-11 funds, vice the Navy's access to MFP-2 funds for service-generic platforms.

Stakeholder Critical Success Factors proved more important than previously thought. On the one hand, they identified the trade space in which principal stakeholders and their subordinate organizations could find common ground for cooperation. On the other hand, they proved to be the factor that reinforced an organization's bounded rationality and inflexibility; which prevents any possibility for cooperation. The case demonstrated that on the one hand, the Navy's critical success factor for maintaining interoperable capabilities with SOF drove them to commit $400M to the installation of hardware that enabled select submarines to accommodate the launch and recovery of dry combatant submersibles. The case also demonstrated that on the other hand, the Navy's critical success factors of safe nuclear submarine operations combined with the desire to maintain the relationship with naval service entities and support structures (in this case, the Naval Sea Systems Command) to serve as the "In Service Engineering" agents for certification of submarine and deep submergence platforms erected a non-negotiable barrier to cooperation.

Figure 17: RBT Mapping Diagram: Nuclear Submarines with Highlights



This particular point requires a bit of elaboration because of the role the observation played in Phase V with the S301. The contentious issue is that NAVSEA did not certify the S301 because it could not meet the requirements of P9290. Cooperation stopped as to whether or not P9290, a certification manual for deep submergence systems, is the appropriate metric from which to certify NSW and USSOCOM's shallow water combat diving platform. Within the context of this study vis-a-vis Resource Based Theory, the appropriate questions are why did Navy create NAVSEA and why did NAVSEA make this decision? The Navy, acting as agent for DoD and Congress, established an organization to provide engineering design, technical expertise, and safety oversight independent of operational influence to ensure the platforms would perform as intended.[4] The Critical Success Factor for the stakeholders is safe operations and as such the service entity develops a distinct competency for technical control and the organization adopts a zero risk policy. The stakeholders reinforce repeatedly reinforce their CSFs when they highlight NAVSEA's poor technical and project management.[5] Finally, when NAVSEA did accept a certain amount of risk when it authorized the operating procedures for the world's largest lithium ion battery developed on an accelerated time line and after less than perfect lab testing, the

[4] Independent engineering and safety oversight is a foundational concept for preventing unintended consequences and catastrophic accidents in complicated engineering designs, as described in Chapter Four. SUBSAFE and P9290 are examples of this borne out of tragedy. The concept is applicable across domains and was recently reinforced by the *Challenger* disaster in the United States and the UK's loss of a NIMROD due to a catastrophic failure in Afghanistan. Email and Haddon-Cave Report and Author interview with Norris.

[5] GAO reports 2003 and 2007.

consequences for accepting risk were high.[6] NAVSEA's distinctive competency is to identify and accept zero risk in engineering design for fleet-wide application to meet the Critical Success Factors and achieve the HLO of their stakeholders.

Finally, the most interesting discovery focuses in on Linked Competencies. Although they serve as a basis of cooperation until Critical Success Factors of the principal stakeholders that reflect differing High Level Objectives conflict with each other, Linked Competencies based on co-specific tasks proved to be the source of competitive advantage precisely because they are non-imitable. Competitive advantage is clearly seen in both ASDS, JMMS and for that matter, the wet SDV.[7] These programs were designed in accordance with P9290 and, from the perspective of NAVSEA, their design neither risks the nuclear submarine with the threat of implosion nor risks the safety of the operators. Although Cost, Schedule and Performance continue to stand out as critical success factors for NSW and USSOCOM, the primary issue for the principal stakeholders, and USSOCOM for that matter as a head of agency by statute, is the valuation of that source of competitive advantage. This valuation is the link to the monopolistic condition under which the defense industry operates and the source of government's price insensitivity.

[6] The battery reports resulting from the ASDS lithium battery fire still remain limited in their distribution. Attempts to contact NAVSEA program managers involved with the selection and events surrounding the incident have received no response.
[7] Both the platform employed today, the MKVIII Mod I, and the new program called the Shallow Water Combat System (SWCS) that is part of the new Undersea Strategy announced by USSOCOM, approved by DoD, and funded by Congress.

The Reckoning: Congress

In the case of Congress and the first of the two secondary research questions, the hypothesis was essentially correct, but only partially identified congressional concern and method. As predicted, Congress intervened while executing its oversight capacity, both with regard to capability generally and particularly with regard to DoD. The principal method was the power of the purse, but their method was not limited to it. Additionally, congressional constituencies did in fact matter, but not limited to the voters in any given district. Several discoveries in the study reveal that Congress, at least certain members, had and continue to have a broader perspective and deeper understanding of the issues than captured in the organizational and bureaucratic politics model described in Chapter Two.

Congress is organized around committees. Issues are addressed by Congress as they relate to the committees, and Congress performs its oversight and appropriations roles from within the committees. Committees are structured by seniority, and the committee leadership sets the agenda and prioritizes the issues and wields congressional power from the committee. As mentioned in Chapter Four, six committees are important to USSOCOM. As an illustration, USSOCOM is located in Tampa, Florida, the district that is represented by the Chairman of the House Appropriations Committee and he takes a great interest in USSOCOM. Longevity is the critical element of congressional seniority and as such, a long-standing relationship with in-depth understanding of any given issue develops as well as the resources of both the committee and tools any individual member can draw on. This advocacy is seen by other members in leadership spots in the principal committees and subcommittees in both houses of Congress that are geographically tied to Special Operations Forces concentration areas.[8] An additional example germane to this study is found in the Senate Appropriations Committee member Senator Inouye of Hawaii, the state in which SEAL Delivery Vehicle Team ONE is home ported. The Senator's, and the committee's professional and personal staffs', cognizance and support for the military construction that provided the initial Advanced SEAL Delivery System infrastructure was essential.

Congress, or those members in Congress with an interest in the issue, employed two additional tools beside the power of the purse to intervene with DoD and USSOCOM in particular. First, Congress investigated with committee professional staffers, personal staffers and the GAO. The professional staffers provided specific insight into the dry combatant submersible capability as well as an assessment relative to other capabilities and issues within defense generally. This professional insight by the staffers in part becomes the link for the member and the program to its priority politically under the condition of monopsony. Personal staffers have trust of and access to the member and help members prioritize their interests. Finally, the GAO represents one of several resources that a congressional member in general or certain committees control to conduct official audits and investigations and place the information in the public domain

[8] Bill Coultrup, phone interview by author, December 6, 2011. COL Coultrup is the Director USSOCOM Legislative Affairs Office.

for discussion. The GAO, for example, analyzes issues relative to the oversight responsibilities of Congress.

Second, Congress also inserted into legislation conditions and directions for the executive branch of government, including DoD and USSOCOM. For example, Congress recommended to DoD that it designate the ASDS and JMMS as an ACAT1D program because Congress wanted DoD to provide the program help with the additional oversight requirements and systematic decision making process that an ACAT1D designation requires by statute.[9] Although difficult to prove, it appears that the impact on the programs that constituted the DCS capability received disproportionate attention for their relative size and that the attention generally produced the positive effect of keeping the program alive with consistent approval for USSOCOM's efforts.

Three instances clearly demonstrate the proposition. First, DoD approved and passed through USSOCOM budget requests to recode procurement and Research and Development funding. Second, Deputy Secretary of Defense provided an increase in funding to procure the JMMS. Third, DoD approved USSOCOM requests to access foreign manufacturers and engineering specialization. Having said that, they did not direct the Navy to accept non-NAVSEA certifications!

Unexpectedly, Congress intervened repeatedly throughout the history of the programs at all its major inflection points. In part, they intervened because the program needed resources to execute the program and its changes, which Congress authorized and appropriated. In this capacity, Congress expressed its

[9] Phone interview by Author with Mr. Lankler.

interest, or high level objective in RBT terms, in an effective use of the resources with conditions on the funds at four points in the program history. This is counterintuitive under a condition of monopsony and public system that values capability and transparency over efficiency.

Also unexpected is the importance of the sponsorship of an individual committee member in a leadership position in one of the principal committees or sub-committees to champion the required issue through committee and into congressional action. Related to the effectiveness of the congressional action is the individual member and the breadth and depth of the constituencies the member can call on to assist or to leverage to arrive at a solution and decision on, in this case, the dry combatant submersible.

The Reckoning: Industry

In the case of industry and the second of the two secondary research questions, the hypothesis was essentially correct but incomplete in describing the complexity of the relationship. As predicted, the tier one firms, responding to a new demand, attempted to shape the requirement and adapt their systems to indirectly influence the eventual outcome.[10] The attention on Northrop Grumman Corporation (NGC) after it bought Westinghouse and inherited the ASDS contractual obligation and its follow-on acquisition of Newport News Shipbuilding in 1997 provides evidence for the observation. It was Newport News Shipbuilding's technical rigor and ship-building expertise that was eventually

[10] Author interview with Dennis Gallimore.

leveraged and adapted to the combat submersible after enough pressure had been placed on NGC. Participation in the ARAP, particularly the leadership role in the Critical Systems Review and the supporting role in the Integrated Product Team, provide NGC with the opportunity to shape the discussion and course for the completion of the AIP. This insight to the exact technical issues and risks would be useful for follow-on design concepts and requirements articulation for the JMMS. This shaping effort was not restricted to, nor intended to be restricted to, simply NGC.[11]

Also as predicted, tier two firms, responding to a new demand, attempted to present their technology as an alternative solution to the requirement. This effort was witnessed with the initial contract award. Reaching outside their level of expertise, Westinghouse Electric Systems won the contract with the lowest bid but did not follow established technological development best practices and submarine construction techniques and as a consequence developed production problems due to subsystem and system integration performance shortfalls.[12] Phase V presented the next exhibit of the same phenomena. However, Submergence Group did a much better job both introducing their technical concept and shaping the requirement through regular interaction with NSW as early as the closing stages of Phase III, during the AIP. Although it is argued that it was an adaption

[11] Author interview with Mark Pawlowski. Mr. Pawlowski is deputy PMS 399. PMS 399 intended to reduce contractor risk and hopefully develop a broader pool of contractors to choose from during follow-on contract bids. The CSR consisted of industry and government specialists and all parties reviewed the data. In submarine design, contractors are involved with the design from the very beginning. Interview, CAPT Gard Clark, PMS 399.

[12]Assessment made by NAVSEA Investigation into ASDS performance. NAVSEA ASDS Program History Brief.

of the S201, the S301 was built with direct input from NSW.[13] The shaping was so effective that NSW even assisted accessing research and developmental funds[14] for the development and later lease of the S301 on a sole source contract.[15] However, the introduction of the new technology was in the end determined by NSW, not industry. They restricted themselves to that technology and assisted its development.

Several discoveries in the study reveal that the defense literature as described in Chapter Two is insufficient in capturing the structure of the current defense industry. The hypothesis developed from the literature reflected neither the creation of USSOCOM, with its unique authorities and its MFP-11 tool, nor its impact on the defense establishment. Consistent with the literature, the military services continue to dominate the defense establishment with Major Defense Acquisition Programs that far outsize USSOCOM's procurement budget as well as the number of USSOCOM-sponsored programs with ACAT1 designation.

However, USSOCOM's ability to validate its own requirements plus its rapid acquisition process provides industry with an opportunity to get their products developed and field tested with Special Operations Forces in the battlefield for further on spiral development and refinement, adaption and fielding on a large scale with the general purpose forces.[16] USSOCOM serves as linking agent for small companies with specific technology and limited product lines to

[13] Author interviews with CAPT Gard Clark, Tom Carlson, Guy Kemp and Brett Phanoeff.
[14] Author interviews with Guy Kemp, Brett Phanoeff, John Green (July 28, 2011).
[15] FedBizOpps.gov: Federal Business Opportunities. https://www.fbo.gov/. (accessed December 15, 2011).
[16] Author interview with Doug Gregory and phone interview by Author, Mr. Lumpkin, ASD/SOLIC.

both the military services and, if adopted by the services, acquired by the larger tier one defense firms. In effect, USSOCOM becomes an agent that expands the industrial base and technological options for the benefit of the government.[17]

Although this is more readily seen under USSOCOM's non-ACAT1 programs,[18] the same concept was demonstrated to an even greater extent in the dry combat submersible story. In Phase V, USSOCOM persuaded the Secretary of Defense to grant USSOCOM an exception to US Title 10, sec 7309, which prevents foreign firms from building ships for the US military. USSOCOM acted on that authorization or an exception to US law, expanding the possible technological alternatives beyond the traditional defense establishment when it leased S301.[19] At this point, Submergence Group begins to establish itself as a prime contractor. Industry across tiers is increasingly complex in that system integration and prime contracting is no longer the exclusive role of tier one firms. From the perspective of the government, this change in relationship provides opportunities for a mix of adaptive and innovative possibilities, but more importantly, brings more manufacturers into the market, further reducing the bargaining power of the established firms. Finally, the case demonstrated that USSOCOM's MFP-11 tool provided the opportunity for USSOCOM, either through NAVSEA or through NSW, to go directly to outside firms or suppliers to

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[17] This expansion was one of the specific intents of PMS 399 as they and USSOCOM prepared for industry days supporting both the announcement to industry of the intentions to procure the JMMS and later the multiple platforms that form the foundation of the new undersea strategy. Author interview with Mark Pawlowski.

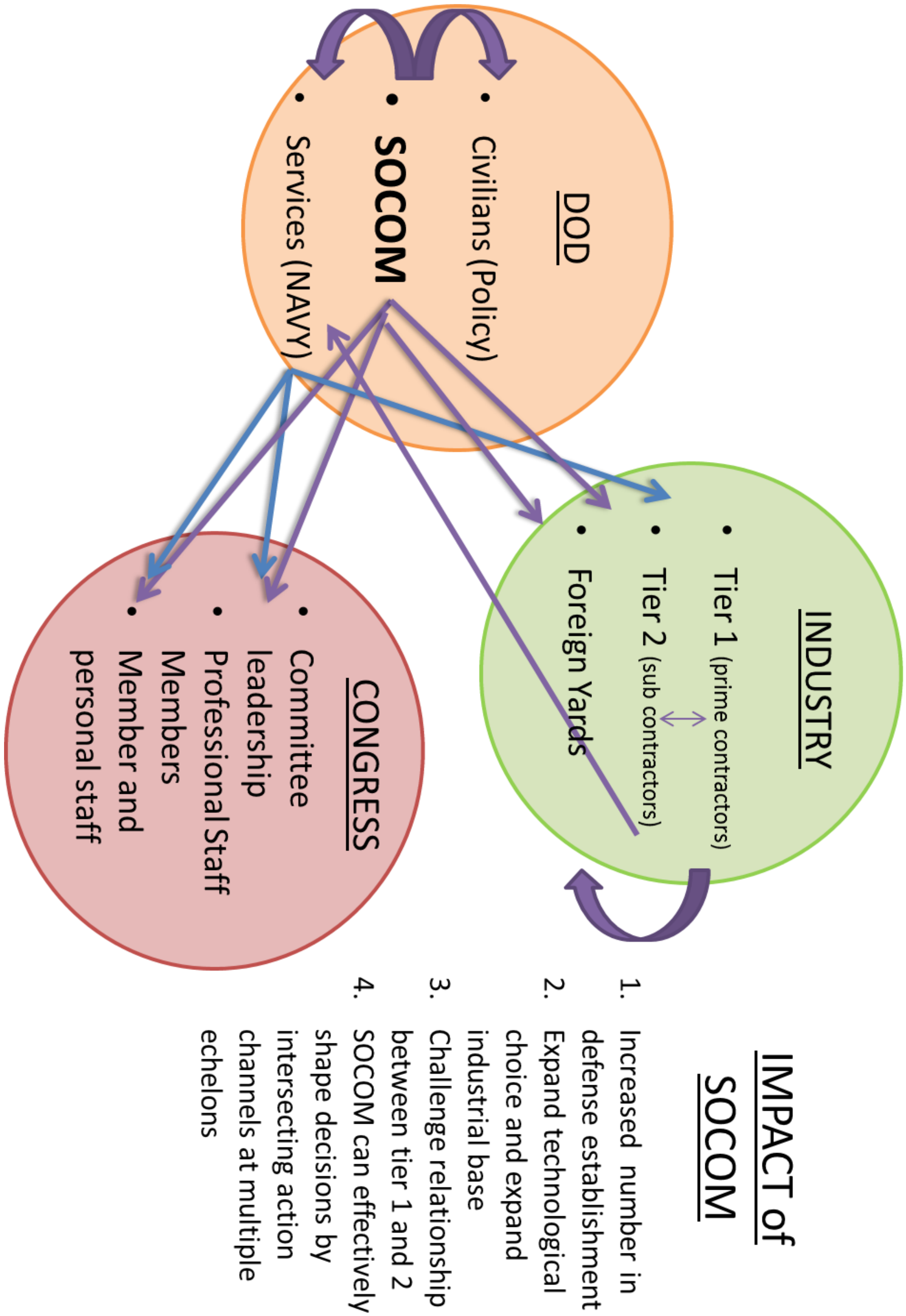
[18] Phone interview by Author with CAPT Kelly.

[19] Note that the S301 was contracted with Submergence Group, the US company owned by Marlin Submarines of the United Kingdom.

get around the constrained relationship with NGC. This was seen in systems and components that directly affected the performance of the ASDS.

As seen in the diagram below, the impact of USSOCOM has been to increase the number of relationships within the defense establishment. But USSOCOM's procurement budget is too small to fundamentally change the relationships outright and in the near term. Instead, over time and contract by contract, USSOCOM expands technological choice, inducing innovation vice adaption, and industrial base for the benefit of the government, as well as alters the relationships between tier one and tier two firms. Finally, USSOCOM can effectively intersect organizational and bureaucratic action channels to shape decision making at multiple echelons within the organization.

Figure 18: RBT Impact of SOCOM



Post Script: NSW, USSOCOM and the Undersea Strategy

The requirement for a dry combat submersible, a foundational component of USSOCOM's undersea strategy[20] approved in Phase Five, remains a priority and a driving bureaucratic imperative priority to this day. Several discoveries from this study indicate that Resource Based Theory can provide some insightful and counterintuitive perspectives that may prove useful in future decisions regarding the Dry Combat Submersibles specifically and Special Operations peculiar maritime mobility platforms in general. USSOCOM may find that the insights gained from Resource Based Theory's analytical framework for generating cooperation between Naval Special Warfare and the Navy may prove useful for its other Special Operations Forces service components and their parent services. Deriving competitive advantage in the public sector cannot be accomplished by one organization, even with unique authorities, and the costs of achieving it require trade-offs that are difficult and require a long-term perspective. Finally, the role of the individual, an inherent core attribute and cultural foundation for Special Operations Forces, proved to be a key contributor

[20] As discussed in Chapter Three, the family of platforms includes a new DDS, a follow on wet SDV called the Shallow Water Combat Submersible or SWCS, a Dry Combat Submersible Light (DCSL) that operates off a submarine, and a larger vessel with longer range and payload that is called a Dry Combat Submersible Medium (DCSM) that operates off of a surface platform and has the potential to operate off of a submarine. Submergence Group entered a sole source contract to develop the S351, a prototype for the DCSM. USSOCOM is drafting policy in accordance with the MOU to enable SOF to operate DCS platforms independent of NAVSEA's P9290 requirements and to exercise its exception to US Code, Sec 7309 restrictions as it exploits foreign made expertise. Congress, in the draft FY-12 Defense Appropriations Bill, stipulates that the USSOCOM's program's family of undersea platforms will remain an ACAT1D Major Defense Authorization Program.

to NSW's and USSOCOM's maintenance of the quest for a dry combatant submersible capability, a foundational aspect to NSW's distinct competencies.

First, the application of Resource Based Theory indicates that cooperation between NSW and the Submarine Force was generated through feedback loops within and between each component as they developed their distinct competencies that when linked together provided an enduring source of competitive advantage for the US government:[21] the most clandestine infiltration method in the maritime domain. The cooperative effort included Navy committing $400M of MFP-2 funds to install the required hardware on select submarine platforms to enable NSW's undersea mobility platforms to operate off of them. However, cooperation fell apart when Critical Success Factors, set by the principal oversight stakeholders, collided, specifically between NAVSEA and the Submarine Force, over the risk incurred to the nuclear submarine platforms of non-P9290 certified combat submersibles. USSOCOM accepted this non-negotiable position on the part of NAVSEA, serving as the agent for the Navy, and appears to have proceeded along a path that precludes DCS and submarine operations. Although this choice presents a clear path to DCS operations, it does so at the expense of the enduring source of competitive advantage, that non-imitable capability of combining truly independent undersea operations with clandestine access in the maritime domain: the unique combination of clandestine strategic reach provided by submarines with tactical movement and maneuver of the SOF platform.

[21] The concept of feedback loops creating and distinctive competencies driving cooperation in USSOCOM's Army and Air Force Special Operations components was tested at the Naval War College and presented to the Commander of USSOCOM in the Spring of 2011. The same results were achieved.

The analysis shows that USSOCOM, as a head of agency, can negotiate with the principal stakeholders. USSOCOM may consider discussing the HLO and CSF with the stakeholders vice attempting to negotiate around a CSF with NAVSEA that it does not have the authority to break. The notion of accepting any risk to the submarine is hard to argue against. However, the notion that all NAVSEA is the only agency capable of identifying some objective probability of occurrence of an implosion of a DCS in the vicinity of a submarine or the safety of the divers within a DCS is hard to accept. Although ABS may not be the right organization, other foreign organizations have that capability. More importantly, if stakeholders in the Office of the Secretary of Defense, the Office of the Secretary of the Navy, or the Chief of Naval Operations cannot be swayed, the pricing alternative that Submergence Group has introduced into the equation is at such a spread against established domestic submarine builders that it should not be adverse to rebuilding the platform from the ground up. After all, it is purpose-built for NSW. Furthermore, DoD, the Navy and Congress clearly support joint operations and the concept of competitive advantage as a HLO. Since defense continues to be price insensitive and since the cost is so small relative to other Major Defense Acquisition Programs by virtue of its ACAT1D status, a discussion with DoD and congressional stakeholder maybe warranted.

Second, from an organizational and bureaucratic politics perspective, USSOCOM has clearly improved its ability to leverage its unique authorities. The receipt of exception to Title 10, section 7309, US code regarding the construction of naval vessels in foreign shipyards illustrates the point rather graphically.

Additionally, the decision by the JROC to delegate to USSOCOM the responsibility for validating Special Operations peculiar capabilities provides USSOCOM enormous latitude and opportunity to move in a direction rapidly. This may be in line with the original intentions of the legislation and at least has provided SOF with incredible flexibility and adaptability as it faces enormous pressure in sustained combat operations, arguably a competitive advantage in and of itself. However, the resistance to ACAT 1 designation because of the substantially increased administrative requirements may be misguided. This study has shown that ACAT1D designation was critical to its survival. USSOCOM and NSW received top-level attention and resources; that is, cooperation from the highest levels of the defense establishment over an extended period of time when all Critical Success Factors of the principal stakeholders were not being met. DoD, Congress, and the Navy dedicated enormous amounts of resources to the program when its cost, schedule and performance shortfalls dictated that it should have been cut. But the source of competitive advantage is a non-imitable operational capability of USSOCOM and Navy assets. USSOCOM and Navy cooperation is painful, but running away from it to ease the pain comes at the expense of competitive advantage on behalf of the nation.

Third and finally, individuals matter. This study has focused on the organizational and bureaucratic politics model and how organizations operate within and outside of that structure and according to procedure. However, at each of the inflection points in the story and just as important behind the scenes, several individuals operating at the multiple levels of decision affected the outcome. They were either committed to the idea or understood that bargaining power works in an organization structured on the premise of distributing power. Navigating through the defense establishment is about exercising power.[22]

Finally, this study has also shown that Resource Based Theory from the strategic management literature has applicability in identifying the core competencies of Special Operations Forces components, enduring sources of competitive advantage, paths to cooperation, and sources of organizational and bureaucratic conflict. Suggestions for future research include extending the theory to other components within the defense establishment to identify the source of competitive advantage between Special Operations service components and the other military services. Further clarity is also needed on the impact of differing contracting strategies on procurement outcomes, specifically the CSF of cost, schedule and performance. The defense establishment is unique in that it operates under the condition of monopsony. Further research could benefit the applicability of RBT in public management across other departments of the US government. Today, the growing recognition of whole-of-government approaches to respond to the complex problems the US faces require cooperation across government agencies. Repeated calls for a Goldwater Nichols type legislation for the interagency community have not gained traction. RBT may provide an analytical method to identify organizational and bureaucratic cooperation and conflict prior to emergency.

Finally, the impact of the changing geo-strategic environment on a public organization's distinct competency and enduring source of competitive advantage

[22] Author interview with VADM Harward, Deputy Commander, USJFCOM.

requires further study. The environment is uncertain and resources are scarce. Understanding risk and the decision to move from operational prototype to production or to devalue the capability and move to cancellation will likely be a decision faced more often. Prioritization and allocation of scarce resources is a challenge that will grow in the future, and to some extent RBT is a useful theory for understanding why and how organizations can cooperate rather than compete to develop capabilities.

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