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Design in Military Operations
A Primer for Joint Warfighters

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“Military operations, particularly those involving combat, have always been challenging. The Joint Operating Environment (JOE)¹ advises that today’s operational environment challenges us even more with increasingly complex geopolitical circumstances, the emergence of non-state actors, rapid technology change, and our inability to accurately forecast how threats will emerge and what form they will take. Adaptive adversaries who possess a broad range of asymmetric capabilities and home-field advantages will also confront us. Strategic and operational problems that we cannot solve with military ways and means alone are the norm rather than the exception.”

“The complex nature of current and projected challenges requires that commanders routinely integrate careful thinking, creativity, and foresight. Commanders must address each situation on its own terms and in its unique political and strategic context rather than attempting to fit the situation to a preferred template.”

USJFCOM Memorandum, 6 October 2009
Vision for a Joint Approach to Operational Design

¹ Refer to USJFCOM publication *The Joint Operating Environment (JOE)*, 2008, for a historically informed, forward-looking effort to discern more accurately the operational challenges we will face.

MESSAGE TO JOINT WARFIGHTERS

In his October 2009 *Vision for a Joint Approach to Operational Design*, General James Mattis, USMC stated that “Standard planning processes...have served us well to this point.” However, he noted that commanders and staffs generally tend to use these processes mechanically, with a focus on procedural steps and details that obscure the importance of the underlying creative process required for design. The complex nature of current and future challenges requires that critical thinking, creativity, and foresight become the norm. Commanders must address each situation on its own merits and with its unique political and strategic context rather than attempting to use predetermined templates.

The goal of this design primer is to make sense of a complex environment, to aid in identifying and understanding problems in that environment, and to develop an approach that addresses those problems. The core ideas of design, which the Army and Marine Corps have captured in their doctrines, may soon improve joint doctrine’s existing discussion of *operational design* and its interaction with joint operation planning. This primer advocates the potential value of understanding the operational environment as a set of complex and adaptive systems. However, it is essential for readers to understand that we do not advocate a scientific solution or a systems engineering approach to solve operational challenges. We understand that warfare is inherently complex and unpredictable, and that it is the commander’s judgment in the face of uncertain circumstances that is the key to success.

We hope this primer stimulates the joint community’s thinking about the best way to adjust joint doctrine, joint professional military education, and ongoing operations to capture and use design value-added concepts. A follow-on *Operational Design and Planning* handbook will include “best practices,” vignettes, terminology, and details on the integration of design with joint operation planning. We look forward to your ideas and encourage you to participate with us as we move forward in advancing design.



STEPHEN R. LAYFIELD
Major General, U.S. Army
Director, J7/Joint Warfighting Center

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SECTION I

Introduction

"First, in designing joint operations, the joint force commander must come to grips with each operational situation on its own terms, accepting that this understanding rarely will be complete or entirely correct, but at best will approximate reality."

"In this environment, the joint force cannot afford to apply preconceived methods reflexively, but instead must conform its methods to the specific conditions of each situation."

Capstone Concept for Joint Operations
15 January 2009

The Joint Operating Environment (JOE) states that "The nature of the human condition will guarantee that uncertainty, ambiguity, and surprise will dominate the course of events."² The JOE continues this thought by concluding that we will be surprised regardless of how carefully we think about the future or how coherently and thoughtfully we prepare our concepts, doctrine, and training programs. Commanders at all levels in ongoing and future armed conflicts will continue to face highly complex, dynamic and novel problem situations for which the known and practiced solutions of doctrine may not suffice. The JOE's companion *Capstone Concept for Joint Operations* (CCJO)³ describes how the idea of **operational adaptability** (understanding-acting-assessing-adapting) interacts with combinations of combat, security, engagement, and relief/reconstruction activities to help the joint force address the challenges of the future operational environment. Specifically, the CCJO promotes the idea that dealing with uncertainty and complexity requires:

- Addressing each situation on its own terms, in its unique context, rather than attempting to fit the situation into a preferred template.
- Conducting and integrating a combination of combat, security, engagement, and relief and reconstruction activities according to a concept of operations designed to meet the circumstances of the situation.
- Conducting operations subject to continuous assessment of results in relation to expectations, modifying both the understanding of the situation and subsequent operations accordingly.

² *The Joint Operating Environment*, US Joint Forces Command, 18 February 2010, p. 5.

³ *Capstone Concept for Joint Operations*, Version 3.0, Department of Defense, 15 January 2009.

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This pamphlet builds on the JOE and CCJO by describing a construct called *design*, a methodology for applying critical and creative thinking to understand, visualize, and describe complex, ill-structured problems and develop approaches to solve them. This pamphlet has three interrelated purposes:

- To promote focused discussion, within both the joint and the broader Defense communities, on the nature and role of design in military operations.
- To motivate the joint community towards further experimentation with the application of design. Currently, USSOCOM, USCENTCOM, USSOUTHCOM, and USARCENT are using design in the field, to varying degrees. Further experimentation could refine and improve upon the best practices developed at these commands.
- To provide the basis for expanding and refining *operational design* in joint doctrine and education. The relationships between *design* and *operational design* are discussed on pages 27-29.

As described in this pamphlet, *design* is useful to anyone who must resolve highly complex, dynamic and novel situations. It applies to all types of military and non-military operations and in many operational settings. It describes an application of *design* to military operations that is independent of operational method—that is, it does not imply any particular style of operating. It suggests that *design* can precede detailed planning, but does not discuss how one would integrate the components of design into the joint operation planning process or the Adaptive Planning and Execution system. The ongoing revision of joint doctrine will address the integration of *design* and planning. Although the treatment of *design* in this primer addresses military forces in operational circumstances, the *design*'s fundamentals can apply also to complex non-operational situations in which the problem to be solved and the circumstances are ill-defined.

A *design* approach promotes a shared view of a situation and encourages consideration of a wider range of collaboration, expertise, capabilities, and options for resolving a complex problem. In that sense, *design* can facilitate unified action among all participating military and nonmilitary stakeholders in operations toward common objectives.

Section II of this primer explains key terms and ideas that practitioners of design must understand. The section also describes a generic, repeatable logic for applying *design* during military operations, but does not provide a specific set of techniques and procedures for performing *design* in a particular organizational setting. **Section III** of this pamphlet presents, in question-answer format, the most common concerns raised on the topic of *design*. **Annex A** includes seven historical examples that show how *design* components were or were not used successfully in operations ranging from operations in World War II to the 1983 Marine Corps barracks bombing in Beirut. **Annex B** defines key terms used in the primer.

SECTION II

Employing the Components of Design

"Design enables commanders to view a situation from multiple perspectives, draw on varied sources of situational knowledge, and leverage subject matter experts while formulating their own understanding. Design supports battle command, enabling commanders to develop a thorough understanding of the operational environment and formulate effective solutions to complex, ill-structured problems. The commander's visualization and description of the actions required to achieve the desired conditions must flow logically from what commanders understand and how they have framed the problem. Design provides an approach for how to generate change from an existing situation to a desired objective or condition."

Army Field Manual 5-0,
The Operations Process, March 2010

An Initial Summary

Design is a repeatable methodology of reasoning that that helps commanders understand how to change a complex-adaptive system⁴ from “what is now” to “what is feasible and better”— *from the conditions in the operational environment when operations begin (the observed system) to the conditions intended when operations end (the desired system)*. The difference, or gap, between the current and desired system states is the problem commanders and staffs must solve — **how to bridge this gap**. In its purest form, *design* is creative and critical thinking that builds a current and coherent understanding of the relevant relationships in the target environment. While part of the *design* theoretical foundation includes “systemic operational design,” there is no intent to promote either “effects-based operations” or “systemic operational design”⁵ as the school solution to accomplish design because neither has proven to be especially useful to the joint commander. However, thinking about the environment in terms of complex adaptive systems can help commanders and planners understand the operational

⁴ In his monograph on the philosophy of design, MAJ Edward Hayward provides perhaps the most useful definitions of *System* and *Complex Adaptive System* (emphasis ours). System: “A group of independent but interrelated elements comprising a unified whole [...] interacting artifacts designed to work as a coherent entity; a procedure or process of obtaining an objective; an ordered manner; orderliness by virtue of being methodical and well organized. A Complex System is any dynamic system composed of many simple, and typically nonlinear, interacting parts. A complex adaptive system is one whose parts can evolve and adapt to a changing environment” (*Planning Beyond Tactics*, 1).

⁵ “Effects-based Operations” is a concept developed and refined by US Joint Forces Command during the period 2000-2006. “Systemic Operational Design” is a construct attributed to retired Israeli Brigadier General Shimon Naveh.

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environment and key relationships. This primer is explicit about promoting a "systems thinking" approach, not a "systems engineering" approach. An example is the discussion of "systems thinking" on page 23 as a key idea underlying design.

Once they understand the environment and the true nature of the problem, commanders consider how to solve the problem. This involves determining which factors in the broad environment are relevant to the current operation and the problem at hand.

"Framing" is a term sometimes used to include these relevant factors and exclude others. Commanders identify those actors, tensions, and forces that might support, oppose, or are otherwise affected by potential solutions, and then **visualize a broad operational approach** to achieve the best solution. They **capture their understanding and visualization in their planning guidance**, which subordinate commanders, staff, and others will use in subsequent detailed planning.

Because commanders and staffs cannot predict with certainty how their actions will change the environment, particularly when the opposition begins to react, they maintain a posture of skepticism toward the finality of any solution, and remain prepared to **reframe their understanding** of the environment, the problem, and the broad operational approach as evidence accumulates that the system is not responding as expected. This is an acknowledgment that systems can be complex and adaptive rather than simple. We must try to understand how the actions in one part of the system can affect the system as a whole.

Design not only assists the commander to develop products that guide detailed planning, it can also make the **relationship** between the designer and the planner more explicit and can offer pragmatic ways to refine operational art's existing tools. An issue that will face commanders is whether or not they can (or even may want to) devote resources specifically to design, or will joint planners also be the designers. This is occurring both ways in different commands, and there are advantages and disadvantages to each approach. However resourced, *design* is a method of inquiry that supports the commander's ability to make sense of a

DESIGN - A DEFINITION

A methodology for applying critical and creative thinking to understand, visualize, and describe complex, ill-structured problems and develop approaches to solve them.

DESIGN COMPONENTS

- Frame the environment
- Frame the problem
- Develop the operational approach
- Document the results
- Reframe as required

complex situation, capture that understanding, share the commander’s resulting visualization, and develop a broad approach to solve the problem.

The preceding page mentions the five key components of *design*, which are also depicted in Figure 1. In order to conduct design, the practitioner must employ the components in a generally accepted order. While some things must be done before others, however, the learning in one component requires revisiting the learning derived in another component. Thus there is an iterative aspect to the sequence in the diagram, beginning with *framing the environment* and progressing clockwise as the arrows indicate. However, the movement between the components is not entirely unidirectional, because what the commander learns later in the process will affect previous conclusions and decisions. These must be re-examined, and could lead to revision of subsequent conclusions.

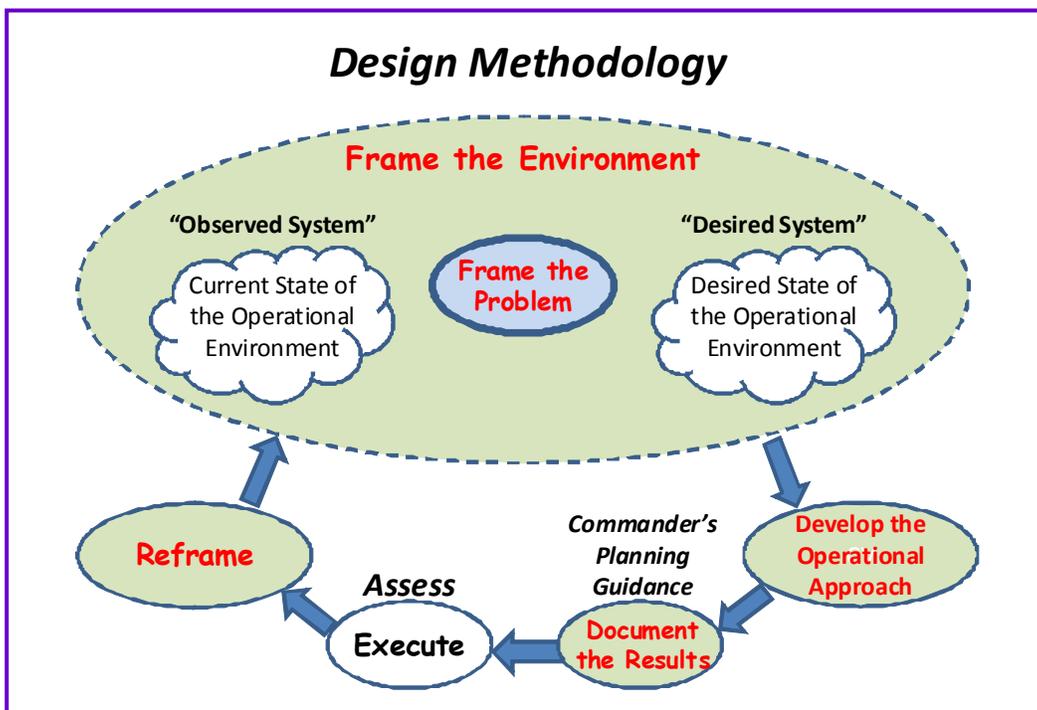


Figure 1. Design Methodology

Frame the Environment

Framing the environment establishes context for describing the problem and developing an operational approach. This primer uses the term “framing” to indicate the process of identifying the relevant aspects of the environment and distinguishing them from the aspects that are not relevant to the operations at hand. In framing the environment, commanders and staffs review relevant directives, documents, data, guidance and any assigned tasks. If required, commanders and staffs inform their higher authority of new information or the basis for differing perspectives of the environment. In particular, commanders and staffs collaborate with their superiors to

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resolve differences of interpretation of higher-level objectives and the suitability of available ways and means to accomplish them based on an understanding of the directing authority's motivations and intentions underlying the tasks or assigned missions. Combatant commanders and staffs, and national leaders, may have a clear strategic perspective of the problem, while operational level and tactical commanders and staffs often have a better understanding of local circumstances. Accommodation of these perspectives is essential to a sound solution. Subordinate commanders and staffs must share their perspectives with superiors early in *design*, and all should resolve differences in problem interpretation and definition as early as possible.

Consultation with external stakeholders and participation of external subject matter experts is essential at this point and throughout design. The joint force is not likely to have all of the experts on staff necessary to understand the nuances of the social, economic, informational and other systems that will comprise the commander's operational environment.

In the example about the design for the strategic bombing of Germany, the environmental assumptions behind the transportation targeting plan were communicated and debated early and continuously; the resulting design incorporated and leveraged all understandings. By contrast, differences between CIA analysts and Military Assistance Command Vietnam (MACV) in the Vietnam War on the Viet Cong strength were not effectively reconciled; the debate remained purely an “either/or” proposition and the U.S. strategic design suffered accordingly.

See pages A-3 and A-7

Framing the environment is continuous. Over time it can reveal the dynamic nature of human interactions and the importance of identifying contributing factors. Even though this understanding will never be perfect, attempting to comprehend the environment's complex nature is crucial to developing the broader understanding necessary to identify and address the problem effectively. Leaders gain increased understanding by skeptical consideration of multiple perspectives.⁶ Useful items for commanders and staffs to consider during the environmental framing include (but are not limited to):

- **Higher Headquarters *Design Products*** — narrative and graphics, statement of the problem, commander's intent and planning guidance, design concepts, directives, and staff estimates.

⁶ Current joint doctrine discusses how to think about the operational environment from a systems perspective. See JP 2-01.3, *Joint Intelligence Preparation of the Operational Environment*, for an approach that identifies the relevant aspects (links and nodes) of the political, military, economic, social, informational, and infrastructure (PMESII) systems that comprise the operational environment.

- **Systems Perspective** — Joint Publication 1-02⁷ defines **system** as “A functionally physically, and/or behaviorally related group of regularly interacting or interdependent elements; that group of elements forming a unified whole. A systems perspective of the operational environment strives to provide an understanding of interrelated systems (political, military, economic, social, information, infrastructure, culture, language, religion, and others) relevant to a specific joint operation without regard to fixed geographic boundaries. Developing a systems view can promote a commonly shared understanding of the operational environment among members of the joint, interagency, and multinational team, thereby facilitating unified action.

- A variety of factors, including planning time available, may affect the fidelity of this perspective. Understanding these systems, their interaction with each other, and how system relationships will change over time will increase the commander’s and staff’s knowledge of how actions within a system can affect other system components. Among other benefits, this perspective helps intelligence analysts identify potential sources from which to gain indications and warning, and facilitates understanding the continuous and complex interaction of friendly, adversary, and neutral systems.⁸

- Used as this primer describes, a systems perspective is intended as an aid to visualization, but is not a *systems engineering* approach to military operations. While some systems (such as infrastructure) are relatively static, many systems in the operational environment are inherently complex and dynamic. Most systems can often exhibit unpredictable, surprising, and uncontrollable behaviors. Rather than being an engineered solution, a military operation evolves as the joint force adapts responsively to systems that also are adapting. It is important to keep in mind the following warning:

"However, 'chaos makes war a complex, adaptive system, rather than a closed or equilibrium-based system,' [sic] which makes predicting and then assessing, how physical actions cause behavioral effects a significant challenge."⁹

- **Terms** — For the primer’s purpose, the following terms are used to clarify the state of the environment before operations begin (during design) relative to a future state of the environment when operations conclude:

⁷ JP 1-02 is the *Department of Defense Dictionary of Military and Associated Terms*.

⁸ A detailed description of using a systems perspective to understand the operational environment is contained in JP 2-01.3, *Joint Intelligence Preparation of the Operational Environment*, 16 June 2009.

⁹ Ibid. The interior quote is from Justin Kelly and David Kilcullen, “Chaos Versus Predictability: A Critique of Effects Based Operations,” *Australian Army Journal*, vol II, no. 1 (Winter 2004): p. 90.

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- **Observed system** is a term of reference for the current state of the system as we see and understand it.
 - **Desired system** is a term of reference for an emerging understanding of the state of the system as we believe it should be at the end of operations in order to support US or coalition interests as expressed in strategic directives and harmonized with the learning achieved in the development of the observed system.
 - A **condition** is a reflection of an aspect of observed and desired systems. In other words, the *observed system* is typically comprised of a number of existing conditions, while the *desired system* is comprised of a set of potential desired conditions. These desired conditions are necessary in order for the *desired system* to be realized.
- **Key Actors, System Tendencies, Potentials, and Relationships** — Commanders and staffs focus on understanding key aspects of the system including groupings, relationships, or interactions among relevant actors. This learning involves discerning the relationships between the numerous actors and other influential aspects in the environment. *Key actors* are those individuals or groupings whose actions will influence the behavior of the system. *System tendencies* are predictions about how the system will behave if left alone. *System potentials* are the limits to which a system can be influenced by our actions and those of others. *System relationships* are the linkages that connect the interaction of the actors who make up the system.

Commanders and staffs develop a contextual understanding of the situation that can be expressed, when time allows, by a narrative and graphic description that captures the history, current state, and future goals of relevant actors in the environment. This description includes how the situation developed (historical perspective), how the matters currently stand (current conditions), and how the situation could trend in the future if no action is taken (possible future conditions). Through this, commanders and staffs are better able to anticipate potential future events and the possible effect their actions will have on the environment.

The environmental frame depicts the *observed system* (the current state of the environment¹⁰), identifying the tendencies and potentials of relevant actors and operational variables that define current system behavior and possibilities for change. Based on higher guidance, the environmental frame also defines the set of conditions that constitute the *desired system* (the desired future state of the environment) that would meet the intentions of the directing authorities. The environmental frame strives

¹⁰ The author uses “environment” as a short form of joint doctrine’s “operational environment”—A composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander [JP 3-0].

to explain the actors and relationships within a system, and it questions assumptions¹¹ to allow for more rapid transformation if they become invalid. The environmental frame evolves through continuous learning, and our understanding improves as we learn more about how the systems will react to our actions.

Desired System and Conditions

The *desired system* consists of those conditions that, if achieved, meet the objectives of policy, orders, guidance, and directives issued to the commander. Thus, a *desired condition* is one aspect of the sought-after future state of the operational environment. Commanders explicitly describe the desired conditions and *desired system* for every operation. This description provides for the necessary integration between the conditions that define the *desired system* and the tactical tasks that will produce the effects that will translate into those conditions.

The characteristics of conditions vary. Conditions may be tangible or intangible, military or nonmilitary, or physical or psychological. They also may describe or relate to perceptions, levels of comprehension, cohesion among groups, or relationships between organizations or individuals. Because the desired future state of the environment must be clearly defined, success hinges on accurately describing those conditions. These conditions form the basis for decisions that ensure operations progress consistently toward the objectives that represent the desired state of the operational environment when operations end. When describing conditions that constitute the *desired state*, the commander and staff consider their relevance to higher policy, orders, guidance, or directives.

Time is a significant consideration when determining the *desired system*. How time relates to the *desired system* heavily influences not only the expectations of higher authorities but also how commanders use forces and capabilities to achieve desired conditions. Staffs must exercise diligence throughout design to account for the time expected to achieve the desired conditions. They also qualify whether the desired conditions are intended to be lasting or transient in nature. This temporal dimension is essential to developing effective operational approaches and managing expectations.

Relevant Actors

Commanders use the environmental frame to understand and explain behaviors of relevant actors in the operational environment. An *actor* is an individual or group within a specific system(s) who acts to advance personal or other interests. Relevant actors may include states, governments, multinational actors, coalitions, regional groupings, alliances, terrorist networks, criminal organizations, cartels, multinational and international corporations, nongovernmental organizations, and others able to influence

¹¹ These would be assumptions that the higher HQ plan contains and/or assumptions the commander and planners make early in design to compensate for lack of facts.

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the situation either through, or in spite of, the established civil, religious, or military authorities. A few will be *key actors* who are crucial to the operation's success.

A diagram illustrating relevant actor relationships is a valuable tool for understanding and visualizing the operational environment. However, such diagrams may become so complicated (for more complex situations) that they impart only limited insight and can inhibit critical and creative thought when viewed in isolation. The environmental frame's narrative captures a more detailed understanding of the relevant actors, their interactions, and relationships. When used in concert, a diagram and narrative become powerful tools. Often relationships among actors are multifaceted and differ depending on the scale of interaction and their temporal aspects (history, duration, type, and frequency). Clarifying the relationships among actors requires intense effort since relationships must be examined from multiple perspectives. Commanders can also depict relationships by identifying and categorizing their unique characteristics.

Tendencies and Potentials

In developing understanding of the interactions and relationships of relevant actors in the operational environment, commanders and staffs consider natural *tendencies* and *potentials* in their analyses. A *tendency* is the inclination to make decisions or behave in a certain manner. Tendencies are not considered deterministic, but as models describing the thoughts or likely behaviors of relevant actors. Tendencies identify the likely pattern of interactions and relationships between the actors absent external influence. A *potential* is the inherent ability or capacity for the growth or development of a specific interaction or relationship. Once identified, commanders and staffs evaluate the potential of these relationships to occur within the operational environment.¹² It is important to identify those interactions and relationships that support achieving the *desired system* and those that resist it. The environment frame and *desired system* must account for tendencies and potentials that exist among the relevant actors or other aspects of the environment.

Frame the Problem

Once armed with an understanding of the environment, the design effort shifts to problem framing. The essential activities in *framing the problem* continue to be thinking critically and conducting open, frank discussion with stakeholders,¹³ considering their diverse perspectives, and thereby discovering and understanding the underlying nature of the problem. Understanding the problem is critical, because the logic of the problem

¹² Army Field Manual 5-0, *The Operations Process*, March 2010 discusses tendencies and potentials in Chapter 3, "Design."

¹³ The primer uses the term "discourse" to represent the frank discussion among stakeholders. See the discussion of "discourse" in Section III under the question, "***What are the ideas that underline the design methodology?***"

points to possible solutions based on the premise that solutions will become self-evident once we understand the environment and what needs to be done to change it in an appropriate direction. For example, if the commander and staff conclude that the problem is murder and intimidation conducted by the insurgents, then the solution will likely involve additional security and be more lethally focused in nature. However, the principle aspects of the operational approach will shift significantly if the commander concludes that the problem is the local population's passive or active acceptance of the insurgents. This also points to a hazard in defining the problem too early in the method, because how one defines the problem shapes the proposed solutions and can limit flexibility once operations are begun.

Narrowly framing the problem involves identifying underlying causes of the situation; these define the essence of the problem. Similar to the earlier explanation of "framing the environment," this primer uses the term "framing the problem" to indicate the process of identifying the aspects of the environment frame that comprise the problem at hand. The broad frame for the problem will be expressed as the difference between the *observed system* and *desired system*. Within the narrower frame, commanders begin structuring the problem by refining their evaluation of tendencies and potentials and identifying positive and negative tensions among existing and desired conditions. Further, commanders and staff determine how environmental conditions, actors, or relationships may resist or facilitate moving the system from the observed to the desired system and how to leverage environmental inertia to achieve desired conditions. The staff relies on text and graphics to articulate the problem frame. In framing the problem, commanders and staff address as a minimum these questions:

- What systems (related conditions, actors, or relationships) may oppose us? Commanders and staffs refer back to their understanding of the environment to identify all the actors and influences (friendly, neutral, and hostile) that may impede movement from the existing state to the desired state.
- What systems may help us? Similarly, commanders and staffs identify all actors and influences that can be leveraged to move in the desired direction.
- What organizational challenges and requirements must we accommodate?
- What resources we can draw upon to achieve our goals?
- How much time has been allocated by higher authority for solving the military problem?

Refining the commander's understanding extends beyond analyzing interactions and relationships in the environment. It also identifies areas of tension and competition—as well as opportunities and challenges—that commanders and staffs must address to transform current conditions toward the *desired system*. *Tension* is the resistance or friction among and between actors. It may be positive, that is it facilitates desired environmental changes, or negative, resistant to the desired environmental changes.

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Problem framing begins with refining the evaluation of the relevant actors' tendencies and potentials identified in environment framing and identifying tensions likely to be created by acting in the environment to move from the *observed system* toward the *desired system*. Problem framing articulates how the individual systems can be expected to resist or facilitate moving the system from the observed to the desired state and how their inertia in the environment can be leveraged to ensure achievement of the desired conditions. The staff relies on text and graphics to articulate the problem frame.

The Problem Frame

The problem frame is a refined component of the environmental frame that helps the commander define, in text and graphics, the broad areas for action that will transform existing conditions toward desired conditions that should comprise the *desired system*. These areas for action can provide the basis for the eventual functional lines of effort and geographic lines of operations that can be the centerpiece of the operational approach.

The commander and staff challenge their hypotheses and models, developed during the environmental frame and refined as design progresses, to identify motivations and agendas among the relevant actors with regard to the desired transformation. They identify factors that influence these motivations and agendas. The commander and staff also evaluate tendencies, potentials, trends, tensions, and other factors that influence the interactions among social, cultural, and ideological forces. These may include political, social, or cultural dispositions in one group that may hinder collaboration with another group.

In the problem frame, analysis identifies the positive, neutral, and negative implications of tensions in the operational environment given the differences between existing and desired conditions, understanding that the force's actions within the operational environment may exacerbate latent tensions. Tensions that can be exploited to drive change may be vital to transforming existing conditions. Tensions that may undermine transformation must be addressed appropriately. Because tensions arise from differences in perceptions, goals, and capabilities among relevant actors, they are inherently destabilizing and can both foster and impede transformation. By analyzing these tensions, the commander identifies the problem that the design will ultimately solve.

Stating the Problem

A concise problem statement clearly defines the problem that must be overcome to achieve the desired transformation. It considers how tension and competition affect the operational environment by identifying how to transform the *observed system* to the *desired system*, while adversaries attempt to transform current conditions to their desired conditions. The problem statement broadly describes the requirements for transformation, changes in the operational environment, and critical transitions. The

problem statement accounts for the key time and space relationships inherent in the problem frame.

In the Inchon example, General MacArthur provided compelling and concise descriptions of the military problem his brainchild, OPERATION CHROMITE, was designed to solve. Even though many did not agree with his solution at the time, they understood his reasoning for it; the issue revolved not around the nature of the problem, but the risk in executing the operation. On the other hand, a formulation of the problem that German U-boats posed to the eastern seaboard was not developed until a great deal of damage had been done to Allied shipping. Here, other priorities were seen as taking precedence. It required the very real prospect of defeat at sea to resolve the tensions between priorities and actors and focus efforts against the U-Boat threat first and foremost.

See page A-11

Develop the Operational Approach

As the commander and staff gain an understanding of the problem within the context of the operational environment, potential solutions should become evident. The configuration of tensions, competition, opportunities, and challenges may reveal ways to interact with various aspects of the environment in order to transform it to the *desired system*. Analyzing these options often requires coupling potential actions to a problem by quickly wargaming their possible outcomes. This deepens understanding, informs the commander's ability to visualize friendly actions, and enables the commander to expedite detailed planning by developing intent and planning guidance.

Considering broad approaches to help solve the problem provides focus and sets boundaries for the selection of possible actions that lead collectively to achieving the *desired system*.¹⁴ The staff uses the information and products created during environment and problem framing to create the *design concept*. The staff converges on the types and patterns of actions necessary to achieve the *desired system* by creating a conceptual framework that links desired conditions to potential actions. Likewise, the entire staff considers how to orchestrate actions to solve the problem in accordance with the broad approach.

¹⁴ During detailed planning, planners consider actions identified during design and contained in the approved operational approach as they develop and analyze possible courses of action. The operation plan or order may formalize individual actions as tasks to the joint force's subordinate components.

The Operational Approach

The *operational approach* is a description of **the broad actions that will create the conditions that define the *desired system***.¹⁵ As commanders and staffs consider various approaches, they determine which combination of combat, security, engagement, and relief & reconstruction activities may lead to conditions that define the *desired system*. This *operational approach* provides the logic that enables commanders and staffs to begin visualizing and describing possible combinations of activities and tasks to reach the *desired system*, given the factors, actors, relationships, and tensions identified in the environmental and problem frames. This may include reliable external stakeholder and SME participation.

Commanders and staffs may articulate the *operational approach* by using *lines of operation, lines of effort, or other elements of operational design*, which link tasks, objectives, conditions, and the *desired system*.¹⁶ Design offers the latitude to portray the *operational approach* in a manner that best communicates its vision and structure. Ultimately, the commander determines the optimal method to depict the *operational approach*. However, it is important that narratives accompany graphics so that the broader audience shares the commander's understanding.

Initiative

In developing an *operational approach*, commanders and staffs consider how potential actions will enable the force to maintain the initiative. The staff evaluates what combination of actions might derail opposing actors from achieving their goals while moving the *observed system* toward the *desired system*. This entails evaluating an action's potential risks and the relevant actors' freedom of action. Likewise, identifying the possible emergence of unintended consequences or threats, commanders and staffs may discover exploitable opportunities to create conditions that support the *desired system*. The staff also explores the risks and opportunities of action by considering exploitable tensions. This includes identifying capabilities and vulnerabilities of the actors who would oppose our achievement of the *desired system*. Commanders and staffs can then formulate methods to neutralize those capabilities and exploit vulnerabilities.

¹⁵ The *operational approach* is not the same as the eventual detailed *concept of operations*, which is contained in paragraph 3b of the operation plan or order. The *operational approach* is a broad description of how the commander envisions moving the current observed system in the operational environment toward the desired system. The *concept of operations* is developed during detailed planning, and is a more detailed description of how the joint force will accomplish the commander's approved course of action with available resources.

¹⁶ Section III, *Common Concerns*, addresses the relationship of design to operational design and to joint operation planning.

Resources and Risks

The staff provides an initial estimate of the resources required to support the *operational approach*. Rarely does one organization directly control all the necessary resources. Therefore, capabilities of other partners may need to be considered and relationships established for unified action. Creative and efficient approaches can greatly amplify the effects created by limited resources directly controlled by the commander. Follow-on planning determines the detailed resources required.

The commander and staff identify and consider risk throughout the iterative application of design. Collaboration, coordination, and cooperation among multinational military and civilian partners are essential to identifying potential options for mitigating risk, conserving resources, and achieving unity of effort. These are easier to identify if military and civilian partners participate in design from the outset to build trust and confidence in the effort and one another. The commander's planning guidance explains the acceptable level of risk and outlines risk mitigation measures.

While there were many differences in opinion between military planners regarding Operation ANVIL-DRAGOON, Eisenhower was able to make a cogent argument in favor of the operational approach. Overcoming significant opposition to his concept from British leaders as high as the Prime Minister, Winston Churchill, was only possible through his focus on the desired end-state agreed to by all and his clear communication of the advantages that ANVIL-DRAGOON provided towards that end compared to other alternatives. Conversely, the German plan for the invasion of Russia in 1941 did not enjoy agreement between the Joint Staff and Army Staff headquarters regarding the operational approach once the Red Army was defeated on the frontiers of the Soviet Union. Differences in operational approach concepts were papered over by the Army Staff, contributing to fatal delays in execution when the divergence finally became clear.

See pages A-21 and A-17

Document the Results

Commanders and staffs link the design effort to subsequent planning by issuing guidance to the joint force staff and components and to other interested stakeholders. The *commander's planning guidance* can be as detailed or as broad as the commander desires, and could vary significantly according to the nature of the operation. It often includes at least the mission statement, commander's intent, assumptions, operational limitations (constraints and restraints), and results of the design effort.

The primary design product could be in the form of a ***design concept*** or similarly named product, since it describes the commander's visualization of a broad operational approach for moving from the *observed system* to the *desired system*. This product is

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typically conveyed in text and graphics depending on the commander's personal preference. The design concept describes the desired conditions and the combinations of potential broad actions in time, space, and purpose to achieve the *desired system*. Course of action development during subsequent planning will determine more specific combinations of actions and tasks the force may employ, within the bounds of acceptable risk.

Other relevant design-related outputs include the text and graphics of the environment and problem frames. Diagrams representing relationships between relevant actors can convey understanding to the planning staff. The *problem statement* generated during problem framing communicates the commander's understanding of the problem (or problem set) upon which the approach is oriented.

As detailed planning occurs, commanders and staffs continue to refine the context of the design concept and understanding, the design concept, and related products. They continue to assess operations during execution to continue learning and ensure the design concept remains valid. If the design concept becomes invalid, then commanders and staffs conduct reframing.

Reframing

Through early and continuous assessment, the commander and staff monitor the operational environment and progress toward setting conditions and achieving objectives. Assessment helps the commander measure the overall effectiveness of employing joint force capabilities to ensure that the operational approach remains feasible and acceptable in the context of higher policy, guidance, or orders. If the current approach is failing to meet these criteria, or if aspects of the operational environment or problem change significantly, the commander may decide to begin a *reframing* effort that could cause small adjustments to current operations or a significant reorientation with new objectives and organizational realignments.

Reframing is a process of revisiting earlier design hypotheses, conclusions, and decisions that underpin the current operational approach. In essence, reframing reviews what the commander and staff believe they understand about the operational environment, the problem, and the *desired system* toward which the force is moving. During earlier design, the commander and staff established a starting hypothesis and a baseline for learning by framing the environment and the problem. During execution, they use *reframing indicators* as they continuously monitor and evaluate their design, plans, and actions against this baseline to detect significant unanticipated changes.¹⁷ If

¹⁷ The current doctrinal *assessment process* measures progress toward achieving specific objectives. Conversely, reframing indicators monitor the environment to ensure our understanding, hypotheses, and approaches are still valid. Significant deficiencies trigger a reframing effort that creates a modified or new operational approach.

required, commanders and staffs adjust the operational approach to ensure alignment with the desired direction and determine whether that direction itself remains relevant to the environment and the higher commander's desires and expectations.

Reframing can involve significantly refining or discarding the hypothesis and models that formed the basis of the commander's approach and guidance. Generally, the decision to reframe¹⁸ can be triggered by factors such as the following:

- An assessment challenges the commander's and staff's understanding of the operational environment, existing problem, or relevance of the operational approach
- A scheduled periodic review shows a problem
- Failure to make required progress
- Key assumptions or hypotheses prove invalid
- Unanticipated success
- A major event causes "catastrophic change" in the environment

The Vietnam SEALORDS example shows how a naval commander and staff re-framed a problem regarding interdicting communist river communications so that applying naval Anti-Submarine Warfare concepts in a land environment was successful. On the other hand, the Beirut intervention example well illustrates organizational resistance to reframing the peacekeeper problem, even when the environment had demonstrably changed, with disastrous consequences for both the mission and the Multi-National Force (MNF) in Lebanon.

See pages A-29 and A-25

Because the environment is always changing and evolving, the commander's understanding must also evolve. However, commanders and staffs must guard against becoming so fixated on the need for remaining open to reframing that it becomes an excuse for indecisiveness. Steadfastness, not obstinacy, remains a virtue. Collaboration during reframing provides the freedom to operate beyond the limits of any single perspective. In a complex system, conditions will change because forces and actors will continuously act on the system. Recognizing and anticipating these changes is fundamental to design and essential to an organization's ability to learn and adapt.

¹⁸ Small adjustments to the operational approach are not uncommon, and they might be considered by some to be routine adjustments without connection to a reframing effort. At the opposite end, catastrophic success (or failure) could require a completely new operational approach delivered through an extensive reframing effort.

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SECTION III

Common Concerns

"Too often, commanders default to the planning staff, even to the point that the staff drafts the commander's planning guidance and intent statement. This approach may work when addressing relatively simple planning problems; but many contemporary operational challenges that seem "simple" can be deceptively complex, particularly when their impact is viewed within the larger strategic framework. The commander's thinking, foresight, instinct, experience, and visualization are particularly important during the early design effort, when identifying the true nature of a complex problem and designing an approach to the solution will drive subsequent planning and execution."

USJFCOM Memorandum, October 2009
Vision for a Joint Approach to Operational Design

Situation

You have just received initial guidance from your commander to begin planning, and you have gone through the routine of notifying the rest of your team. In other circumstances, you would have immediately begun a typical analysis to support detailed planning, but your experience leads you to conclude this situation is much more complex. First, you recognize that the underlying problem to be resolved is not evident. Second, you note that some of the required information to understand this problem is not available. Third, the conditions under which you and your team will operate involve many variables that complicate analysis. Fourth, predicting a verifiable solution to the problem is not possible at this point. Fifth, resolving this situation will likely require a combination of multiple concurrent and sequential actions applied in a particular pattern that cannot yet be determined. As a result, you conclude that the planning for this particular situation will require the application of *design*.

Section II described the key components of design and explained relevant terms. With that section and the above situation as a foundation, Section III will provide basic answers to a number of common questions. The intent is to clarify issues raised in the past and expand the reader's understanding of design's potential. There are different perspectives on design's application, and the perspective in this primer is based on the questions raised most often over the past six years from wargaming, experimenting, teaching, and applying the concepts of design in ongoing conflicts. Some of the experienced practitioners may disagree on the details, but disagreements are more likely based on form than on substance.

Common Questions and Answers

Why is something new required?

Operational artists, faced with a problem, typically frame it based upon previous experience and training. The conceptual frame of the current situation is linked intellectually to the similarities shared with the previously known or experienced events.¹⁹ However, if the commander and staff face a problem that they have never encountered and an adversary who is not really similar to what they know, the commander may need a fresh approach. How should one create this new understanding and response? Complex problems do not have a fixed inherent logic.²⁰ The operational artist must develop some understanding of the confounding logic.²¹

Problems that are ill-structured, or what some have called “wicked problems,” often have no obvious form or remedy *a priori*. But complex problems usually share a number of characteristics that can help leaders determine when they are faced with such problems. Following are postulates regarding ill-structured problems:²²

- There is no definitive formulation of an ill-structured problem.
- Ill-structured problems have no stopping rules (not sure when you get there).
- Solutions to ill-structured problems are not true or false, but good or bad.
- There is no immediate and no ultimate test of a solution to an ill-structured problem.
- Every solution to an ill-structured problem is a “one-shot operation;” because there is no opportunity to learn by trial-and-error, every attempt counts significantly.
- Ill-structured problems do not have an enumerable (or an exhaustively describable) set of potential solutions, nor is there a well-described set of permissible operations that may be incorporated into the plan.
- Every ill-structured problem is essentially unique.
- Every ill-structured problem can be considered to be a symptom of another problem.

¹⁹ Klein, Gary. *Intuition At Work*, New York. Doubleday Books, 2003

²⁰ Inherent logic is an underpinning of the environment, actors, relationships, tensions, and potentials that shows why they are so and how they behave as a system(s).

²¹ Confounding logic is an underpinning of the opposing system(s), why it is so and how it behaves as a system(s)

²² Rittel, Horst; Webber, Melvin. “Dilemmas in a General Theory of Planning”, *Policy Sciences* 4, Elsevier Scientific, Amsterdam, 1973, pp. 155-169. This is a theoretical list of postulates from another discipline that has been applied by some to military operations.

- The existence of a discrepancy representing an ill-structured problem can be explained in numerous ways. The choice of explanation determines the nature of the problem's resolution.
- The planner has no right to be wrong (unlike the scientific world with its hypotheses).

The joint force commander often encounters very complex situations that must be framed individually as early as possible. Understanding must be built over time. The commander must identify and understand the important relationships within such complex situations and use them advantageously. One must also understand the likely second- and third-order consequences or implications of various actions. Operational artists should consider that even the desirable effects of the most appropriate actions can decay as the surrounding system responds to the infusion of energy. A detailed understanding of the system dynamics helps the commander to begin to choose an appropriate approach to transform the situation to one that is more desirable and to observe the response of the system in order to recognize when diminishing return sets in so a new, more effective response can be formulated. The discourse of design provides the understanding that the commander and staff draw upon to frame this new complex problem.

Why Consider Design?

Strategists, operational artists, and tacticians currently find it difficult to comprehensively understand and explain complex competitors situated in a dynamic, interactive environment. The complexity of many potential operational environments frustrates conventional thinking and makes it difficult to recognize patterns in an unconventional adversary's actions. This is compounded by the presence of multiple adversarial actors in the same setting, multiple partners with motives in tension with our own, and operations within a social mosaic that includes unique structures and norms, religions, classes, tribes, relationships, and other factors.

Today's problems are not necessarily new. In today's environment, however, complexity is increased by the pace of events in the dynamic circumstances surrounding the problems. Modern technologies that allow nearly instantaneous sharing of information through communications networks and news services also allow closer coordination of criminal, insurgent, and trans-national actors. As a result, the new strategic context may require innovative approaches that effectively integrate all elements of US and multinational power.

What are the ideas that underline the design methodology?

Design frames the problem to be solved in that it constructs a useful but provisional understanding of the relationships of the elements that comprise the situation so that an effective set of actions can be taken to transform the situation into a more acceptable state. Commanders should take the time to challenge existing mental constructs when faced with a new situation. If this is not done, commanders risk

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unknowingly anchoring their thinking based on a preconceived notions that may not respond effectively to current reality.

- *Visualization* — Most people are visually stimulated; therefore, creativity can be enhanced by using visual models and constructs. The complexity of some problems requires that a model of the problem be created. A visual model, based on logical inference from evidence, helps creative thought develop into understanding. Deficiencies of previously hidden relationships often become more apparent when portrayed visually. Likewise, periodic summary of work is best displayed visually, because one can “see” the results of what is being thought. This, in turn, points to new ways of thinking and possible areas for further examination. In other words, seeing something drawn graphically helps us think through tough problems, especially if abstract things are being examined. Relationships among actors and perceptions among humans located within a cultural setting are examples of some of these abstract concepts that are difficult to understand.

- *Discourse* (cordial disagreement resulting in a synthesis of ideas or perspectives) is one of the key methods of design that enables the collaborative building of this visualization. Discourse is embodied in a group whose members offer wide-ranging informed perspectives, take the time to think critically and creatively together, and learn about the relationships and drivers in a complex situation through a synthesis of diverse ideas. Through this methodology, what begins to emerge is a mental model of the current system and the desired or alternative system that will improve upon what exists. Discourse uncovers multiple relationships between system components rather than simply identifying “nodes” within a system. While other approaches may focus on the structure within the system, design focuses on the underlying system logic (complex relationships, stresses, and opportunities within the system and factors that influence those relationships) that defines a human system at a particular moment. The shared visualization created through discourse forms the basis for the development of a unique and contingent operational approach. Commanders must be sensitive to what they say during discourse, or they may induce the staff to provide what they believe the commander wants rather than participating in a free exchange of ideas.
 - Discourse is an iterative exchange of multiple perspectives on a problem. This *sharing through exploration* promotes a rich framing and understanding of a complex and dynamic problem. Discourse facilitates a synthesis of ideas that is greater than the sum of its parts. Each of the members of the discursive group has their own perspective and ideas about the complex situation. However, each trying to think through the situation on their own would not produce the rich result from the merging of multiple ideas from various viewpoints that the group provides. Group discourse provides a more nuanced view than any member could provide individually. Discourse should be focused on the meaning, or “so what” of facts. Discourse is not just fact

- finding; it uncovers relevant facts about *why* things are the way they are and *how* they may change either on their own or in response to action. Discourse is designed to build logic through rationalization, visualization, and mental modeling. It provides a methodology to think through the system, its elements, and the relationships among those elements.
- Discourse is a means to identify and validate the potentially endless supply of ideas that emerge during the process. Through mutual challenge and response, discourse challenges the members of the design team to reveal the logic (or flawed logic) that underlies their individual ideas. What eventually emerges is a higher level of information and a shared understanding, not rising to consensus but delineating grounds of disagreement, where they exist. The result of discourse is a synthesis of ideas and shared visualization.
 - *Systems thinking* refers to a way to study and work within interactively complex systems. It focuses on promoting our understanding of events, looking for patterns of behavior, and seeking underlying systemic interrelationships that are responsible for patterns of behavior. Through our understanding of the underlying structure, we can identify the most appropriate leverage points to affect change within the system. The *systems thinking* approach is fundamentally different than a pure reductionist approach mentioned earlier. While reductionism focuses on deconstructing the system into its component parts, *systems thinking* focuses on the relationships within a system. This creates a greater understanding of open and inherently unpredictable systems.
 - Design employs systems thinking to a greater extent than current planning processes in order to understand complex systems and build mental models of how we believe the system is currently functioning. Design focuses on understanding the qualitative and interactive relationships that underlie a complex system rather than just the structure of the system. This system thinking includes viewing ourselves as part of the system that defines the problem.
 - *Systems thinking* helps the commander frame very complex situations. Broad framing at the outset results in a holistic understanding and an appreciation for all of the key forces and relationships involved in the regulation and flow of the system.
 - *Learning* is central to design — *learning before acting and learning through acting*. Deliberate configuration to enable this learning is essential. Discourse provides discovery before action. Further learning results from the response to action to the physical world.
 - Learning must be continuous throughout operations, because the system will change in response to each action as will the relationships within the

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system. In addition, the system may already be changing rapidly on its own, without the infusion of any additional stimulation. Operational artists must ask themselves what must be learned and how they should be thinking about what has been learned in order to discern not only if they are *doing things right* but if they are *doing the right things*.

- Developing a learning organization is critical to understanding and appropriately addressing a wicked or ill-structured problem. In a wicked problem, it may not be possible to uncover the real drivers of instability, stresses within the system, or key opportunities until our actions during execution stimulate the system. Therefore, it is important during design to not only propose actions to appropriately stimulate the system, but to also develop a learning organization that will monitor changes, attempt to anticipate outcomes, continue to develop a deeper understanding, and rapidly adapt to changes in the dynamic environment.
- *Skepticism* — Identifying the implications of what has been learned is critical. The design methodology requires the operational artist to constantly ask, “What have we learned and what else should we be thinking about it?” This is one of the most important aspects of design. We must structure our thinking. One must ask if our thinking must change. We must consider if we are thinking about this in the right way. If we determine that we are thinking about this in the wrong way, then we must challenge ourselves to create new paradigms, to think about the situation in new and different ways.
- *Non-linearity* — The commander employs the components of design in a nonlinear manner, flowing back and forth between the various frames while considering several operational approaches. No hard lines separate the efforts of each design component. Nonetheless, the logic of design is progressive. Some things depend upon the knowledge that was created before. When an idea or issue emerges, the commander and staff address it in the appropriate component, even if the idea or issue is outside the current focus. If the new data changes an earlier understanding, subsequent conclusions based on it must be reviewed and perhaps reframed (or reformulated) if the logical basis has been unsettled. As commanders and staffs gain new knowledge or begin a new line of questioning, they often shift their focus among components of design while building understanding and refining potential operational approaches to solve the problem.
- *Framing* is one of the most essential terms used in design. Framing involves selecting, organizing, interpreting, and making sense of a complex reality to provide guideposts for synthesis, understanding, and acting. Framing facilitates constructing hypotheses, or modeling, that scopes the part of the environment or problem under consideration. Framing provides a perspective from which commanders and staffs can understand and act on a problem.

What is different about this?

In the western world, we typically use a scientific approach and view problems as deterministic. In other words, we often believe that there is a single answer and we can know it. This simplification can assist us in isolating specific events in order to analyze them. However, this simplification can lead to false conclusions.

There is also a tendency to believe that we can fully understand the problem; however, the first failure of any leader is to assume he or she fully understands the situation. Interactively complex systems simply cannot be fully understood, because they exist in a process of continuous change. Their interactions and rapidly changing relationships prohibit a full understanding of the situation they present at any particular moment. Applying a deterministic model often leads to a tendency to frame problems too simplistically or rigidly, instead of as an interactive system existing in permanent (if bounded) flux.

Often, we view problems as needing to be solved “as given.” In other words, in our haste to solve the problem, we often do not take the time to ensure that we are in fact solving the right problem. We may be solving the wrong problem very elegantly. We also typically enjoy viewing the problem as “out there” in front of us. Rarely do we consider ourselves as one of many actors contributing to the problem and as part of the complex system that underlies the situation requiring action.

In contrast, design helps refine how we think about and approach problems. The design methodology views problems as non-deterministic, and assumes that we cannot fully understand the problem even with extensive study. As a result, we must position ourselves to learn, both before acting and through action — we must “learn as we go.” To do this we must question everything. We must question all of our assumptions. We must ask the questions, “Why are we doing this? Why are we thinking this way? Why is the system behaving as it appears to be?”

Don't we currently use the components of design?

We frame some problems implicitly. Unfortunately, the predilection and ability to conduct problem framing systematically is typically driven by the personality of an individual (idiosyncratically). Some commanders and staff officers, through experience and the nature of their personalities and intellectual discipline, frame problems and construct unique approaches to resolution with great rigor. However, even here, problem framing is typically done at an individual level and is limited by individual perspective. It is usually not conducted in a group forum, drawing on multiple perspectives, but may occur additively as new information emerges. In contrast, the group forum used in design allows for a greater level and diversity of investigation and better insight than an individual framing.

What are our limitations?

Some of the challenges we currently face in understanding a very complex and rapidly changing situation may have roots in how we view problems. The traditional elements of operational design (such as *center of gravity*, *decisive points*, and *physical lines of operation*) that we employ today have their roots in history, theory, and practice. These elements and selected other doctrinal constructs, while still useful, are based on the experiences of Napoleonic, Industrial Age and combined arms warfare, and Soviet deep operations theory. These theories and concepts help to anchor our thinking and form a frame of reference through which we have approached different classes of problems. But, these frames of reference can be problematic in that they can cause us to approach problems in a systematic reductionist way that assumes stability, causality, and predictability.

"Your frame of reference – or framing – influences the decisions you make and how you respond to challenges...Understanding your frame of reference gives you greater control over your end results, because you will be able to separate your logical thinking from your emotions...While framing provides a 'picture frame' that tends to define boundaries, anchors form a point of reference. Both framing and anchoring can restrict your thinking."²³

We often tend to limit our thinking by taking a *structural* approach to understanding and framing interactively complex and adaptive systems. Such an approach is useful when understanding the composition and actions of *structurally complex systems*, whose behavior is governed by relatively standard patterns of behavior, such as the Soviet military during the Cold War period. Some refer to this approach as *reductionist*, "...in which the properties of a system are deduced by decomposing the system into progressively smaller and smaller pieces. "In the act of exploring the properties reductionism loses sight of the dynamics."²⁴ But ***interactively*** complex systems are much harder to understand. Each part (or actor) is not readily apparent, may not have a defined role, and typically has great freedom of action. The key characteristic of these systems is their adaptability — they often respond unpredictably to external conditions. The number of parts making up the interactively complex system is not the critical issue, and we can't understand these systems by studying their parts in isolation. The very essence of the system lies in the interaction between parts and the overall behavior that emerges from the totality of these interactions. **Therefore, one must analyze the system as a whole.** The ongoing

²³ Wheeler, Jim, *The Power of Innovative Thinking*, New York. Barnes and Noble Books. 1998. pp. 16, 17, 21.

²⁴ Ilachinski, Andrew, *Land Warfare and Complexity, Part I: Mathematical Background and Technical Sourcebook*, (Arlington, VA: Center for Naval Analyses, July 1996) p. 184.

insurgency in Afghanistan and the world economy are examples of such complex systems.

How we are thinking as compared to our enemy?

The western world tends to prefer *quantitative analysis* and finite answers. However, many of our adversaries do not view the world as we do. They rely as much on *qualitative* as quantitative logics and more subjective notions of truth. We must be able to view the world as our adversaries view it in order to understand them and thus position ourselves advantageously to defeat them. We must ask ourselves whether we are using our own views and our own ways of thinking to characterize our adversaries and our adversaries' thoughts. If we are using our own ways of thinking to characterize our enemies, then we are likely to have many flawed assumptions and perceptions about how they will act. In many ways, we unknowingly anchor our own thinking. To fully understand our adversaries, we must train ourselves to think like they do. Design may contribute to this understanding.

What is the difference between design and planning?

Design and *planning* are problem-solving processes. Both attempt to understand the problem facing the commander and devise a solution. The difference between the two is largely one of focus and approach. The focus of design is on "setting" the problem, which occurs through a combination of framing the operational environment and framing the problem, while the focus of planning is on developing the detailed solution that executes design's operational approach. Although some process actions necessarily occur before others, design generally is an iterative process in which the commander and staff, through discourse, continually move between framing (understanding) the environment and framing the problem until a broad solution emerges. Ideally, the commander leads the design effort. The emphasis is on critical and creative thinking about a complex problem, and the approach is structured to capture a deeper holistic understanding of the problem and environment than can be achieved through traditional planning. Collaborative thinking facilitates depth and detail by synthesis of multiple perspectives. The approach also emphasizes *learning* about the problem and environment rather than just gathering information. The primary product is a broad, holistic *operational approach* that will ultimately produce the conditions that define the *desired system* state when operations conclude. This product then drives detailed planning.

Service and joint planning processes are largely sequential. For example, the *joint operation planning process* consists of seven steps that comprise a roadmap of activities and sub-steps leading to a detailed operation plan or order. The focus is on determining and describing the detailed actions the force must take to solve the given problem. While the commander's interaction is essential at specific points in the process, planning centers on activities within functional staff areas and cross-functional planning groups and teams. **Planning without design may not result in as deep an understanding as that resulting from the design process.** Planning applies

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analytical methodologies, such as those that analyze and compare alternative courses of action. Design produces a conceptual model of a situation (the commander's visualization), while planning converts this model to a detailed concept of operations to accomplish the organization's mission. The primary product of planning is a plan or order that describes the detailed concept of operations, relationships, and tasks that will achieve the commander's operational approach.

How does operational design interact with current planning methods?

Some suggest that design is distinct from, yet complements, detailed planning. Others contend that design occurs early in the planning process in conjunction with traditional mission analysis.²⁵ Whether it occurs before or in conjunction with formal planning is likely determined by operational circumstances, complexity of the problem, available resources, and the commander's preference. For example, *peacetime planning* for potential contingencies typically allows the time necessary for the commander to form a dedicated design team, marshal external subject matter experts, conduct extended discourse, and develop a broad operational approach before any detailed planning begins. However, the limited time typically associated with *crisis action* circumstances may require design activities to occur in close conjunction with (or as part of) mission analysis. In any case, design and planning are not mutually exclusive. Design frames the problem and produces a broad approach to guide detailed planning. This is why taking the time to frame problems is so important. **The potential solution to a problem is contained within the framing of the problem.**

How does design relate to joint doctrine's operational art and operational design?

As a problem-solving methodology, commanders and staffs at any level (and non-military leaders of all disciplines) can benefit from disciplined application of *design's* components. This is why the Army's FM 5-0, *The Operations Process*, states the following:

"The practice of design is not exclusive to a particular level of command. Design can apply to all levels, depending on the context and circumstances. However, given the complexity of the operational environment, the need for design at lower echelons often increases as brigades and battalions contend with the challenges of shaping environments and conducting operations over extended periods."²⁶

²⁵ In FM 5-0, *The Operations Process*, (March 2010) the Army states, "Planning consists of two separate, but closely related components: a conceptual component and a detailed component. The conceptual component is represented by the cognitive application of design. The detailed component translates broad concepts into a complete and practical plan. During planning, these components overlap with no clear delineation between them." See page 3-1.

²⁶ *Ibid.*, p. 3-6.

Operational art is, “The application of creative imagination by commanders and staffs — supported by their skill, knowledge, experience, and judgment — to design strategies, campaigns, and major operations and organize and employ military forces. Operational art integrates ends, ways, and means across the levels of war.”²⁷ *Operational art* is the purview of joint force commanders, and is applied by them and their immediate Service and functional component commanders. *Design* is both implicit (through the use of creative imagination) and explicit in the definition. *Operational design* is, “The conception and construction of the framework that underpins a campaign or major operation plan and its subsequent execution.”²⁸ To distinguish between joint and Service planning processes, joint doctrine intends *operational design* to be applied at the operational level and primarily by joint force commanders (combatant commanders and joint task force commanders) and their staffs. The joint force’s Service and functional components participate in joint operation planning, so those commanders and staffs familiar with *design* should be well equipped to adjust to any nuances of *operational design*.

Current joint doctrine states, “While operational art is the manifestation of informed vision and creativity, operational design is the practical extension of the creative process.”²⁹ It is evident by this primer’s description of *design* that the components of *design* are directly relevant to joint doctrine’s *operational art* and *operational design*. In fact, the current revision of JP 5-0, *Joint Operation Planning*, is significantly expanding joint doctrine’s discussion of *operational design* to incorporate many of the ideas summarized in this primer.

²⁷ JP 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 12 April 2001 as amended through April 2010.

²⁸ Ibid

²⁹ JP 5-0, *Joint Operation Planning*, 26 December 2006, p. IV-2.

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SECTION IV

Conclusion

"Throughout history, good commanders have recognized the complexities of armed conflict and the importance of their role in its resolution. Operational design is clearly evident in the work that was done to plan the maritime campaign in the Pacific in World War II and in General Matthew Ridgway's recapture of the Korean peninsula in early 1951. Likewise, design is not new to joint doctrine, but I believe we can substantially improve doctrine's current treatment and change JPME and joint training accordingly to the benefit of current and future leaders at all levels."

USJFCOM Memorandum, October 2009
Vision for a Joint Approach to Operational Design

Design is a structured method of inquiry that helps the commander make sense of a complex situation, capture that understanding, and share the resulting visualization with others upon whom realization of the vision depends. Through this collaborative learning methodology, facilitated by *discourse*, a mental model of the complex relationships between system components and their influencing factors begins to emerge. *Systems thinking* develops conceptual interactive models to promote our understanding of events by looking for patterns of behavior and identifying the responsible underlying systemic interrelationships. By understanding the underlying structure, leaders can identify the most appropriate areas to focus their efforts to effect change within the system, and then develop a broad operational approach based on the commander's visualization. The operational approach, perhaps captured in a design concept, provides the basis for detailed planning. *Learning* continues throughout the operation as the commander configures forces to learn through action and routinely assesses the continued relevance of ongoing approaches.

"...conflict is inherently complex and unpredictable. It is a non-deterministic human endeavor whose ramifications are never fully guaranteed, because our adversaries have free will, which will inevitably affect the operating environment in unpredictable ways. The enemy's free will, manifested by courage, imagination, resolve, and other human factors, deny (sic) predictability in most aspects of war."³⁰

General J.N. Mattis
14 August 2008

³⁰ Memorandum for U.S. Joint Forces Command, subj. "Assessment of Effects Based Operations," 14 August 2008.

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Design does not replace planning, but planning is incomplete without design. The balance between the two varies from operation to operation as well as within each operation. Applied in joint operations, *operational design* must help the joint force commander provide enough structure to an ill-structured problem so that planning can lead to effective action toward strategic objectives. Executed correctly, the two processes are complementary, overlapping, synergistic, and continuous.

In a general sense, design's added value to traditional planning, when appropriately reinforced through education and training, should be a recognition by commanders and staffs at all levels that not all problems are created equal, and that an immediate, obvious solution to a problem may not be the right solution. Among other benefits, an understanding of design should stimulate greater collaboration between higher, lower, and adjacent organizations to ensure a common understanding of the environment, the problem, and the approach to solve the problem.

Design ideas are already having a positive effect in the joint community. Some organizations use aspects of *design* in current operations. Institutions such as the Army's School of Advanced Military Studies and the Joint Forces Staff College's Joint Advanced Warfighting School have incorporated *design* in their curricula. The Army's Field Manual 5-0, *The Operations Process*, and Marine Corps Warfighting Publication 5-1, *Marine Corps Planning Process*, discuss *design*. Likewise, the drafts of keystone joint doctrine publications JP 3-0, *Operations*, and JP 5-0, *Joint Operation Planning*, are improving how they address *operational design* and the interaction with the *joint operation planning process*. Nonetheless, most complex problems are not solved by the military instrument alone, so still ahead is the challenge of collaborating on design with our interagency and multinational partners. This primer, as well as the work cited above, should stimulate further experimentation with the design methodology and the application of design's components in actual operations.

ANNEX A: Historical Examples

ANNEX B: Glossary

ANNEX A

Historical Examples

"Only through studying history can we grasp how things change; only through history can we begin to comprehend the factors that cause change; and only through history can we understand what elements of an institution or a society persist despite change."³¹

Peter N. Stearns
The American Historical Association

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³¹ <http://www.historians.org/pubs/free/WhyStudyHistory.htm>

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UNDERSTANDING THE ENVIRONMENT: Planning The Strategic Bombing Campaign Against Germany, 1944-1945

Earlier efforts against the German air force (*Luftwaffe*) and its supporting industry—despite some significant setbacks—had borne fruit in that the Anglo-American Allies achieved air superiority to a degree that would provide for success invading Nazi-held Europe. The *Luftwaffe* had been seriously weakened as a day fighter force and was withering away in early 1944. The key question was, now that the Allies had the wherewithal to mount sustained bombing campaigns throughout most of the Reich, what were the Nazi critical vulnerabilities that, once attacked, would most quickly end the war?

There were three major views held in various quarters of the Anglo-American strategic air coalition. Air Chief Marshal Sir Arthur T. “Bomber” Harris of the British Bomber Command, espoused continuing night area bombing of German cities as the Royal Air Force had done since 1942. The goal of such operations was to inflict as much infrastructure damage as possible to both reduce industrial output and to degrade civilian morale. The Allied firebombing of Hamburg during the last week of July, 1943, was the best example of success in accomplishing the former objective. The commander of the newly formed United States Strategic Air Forces in Europe, LTG Carl A. “Tooe” Spaatz, held a different view. The Allies had long agreed that attacks on fascist oil production facilities were important, but past results had fallen short of expectations. Given new long-range fighters (the P-51 Mustangs) that could escort bomber formations, the proximity of Allied air bases in Italy to targets normally beyond the range of airfields in England, and the demise of the *Luftwaffe*, Spaatz calculated that the time was right to heavily weight the strategic air offensive against this target set. But the last view was held by an airman not directly serving within the coalition air component; British Air Chief Marshal Sir Arthur Tedder was the Deputy to the Supreme Commander, U.S. General Dwight D. Eisenhower. Tedder became the most vocal proponent to attack German logistical lines of communications, principally, railroad facilities. When Tedder had been the Allied Air Commander in the Mediterranean he learned from his science advisor, Professor Solly Zuckerman, that such attacks proved very effective in disrupting German operations in the early stages of the Italian Campaign.³²

Zuckerman’s December 1943 study was controversial and quickly challenged by American airmen in Italy conducting OPERATION STRANGLE; attacks against bridges and viaducts were seen as more profitable than the strikes on rail marshalling yards

³² David Eisenhower, *Eisenhower At War, 1943-1945* (New York: Random House Publishers, 1986), 114.

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Zuckerman advocated.³³ Still on one point both Zuckerman and American Office of Strategic Services advising U.S. airmen in Italy agreed: attacks on supply lines would not be effective alone without simultaneous ground assault; as Zuckerman put it, "...it is appreciated that air attacks on his supply lines cannot produce a critical situation unless his rate of consumption is raised."³⁴

But overall agreement by senior Anglo-American air commanders could not be achieved in the first few months of 1944. Tedder, Zuckerman, and the Allied Expeditionary Air Force commander, Air Chief Marshal Sir Trafford Leigh-Mallory, proposed the "Transportation Plan" to hit enemy rail marshalling yards, bridges, and tunnels within France during the weeks prior to the D-Day landings. The British Prime Minister, Winston Churchill, was against it since he suspected such attacks would cause heavy French civilian casualties—this was politically unacceptable given that the Allies were intending to "liberate" France, not kill its inhabitants.³⁵ Harris was against it because he believed his aircrew were not trained for such precision missions and Spaatz did not like it as he didn't want to divert strategic strike resources away from attacking German petroleum infrastructure.³⁶ The British Chief of the Air Staff, Air Chief Marshal Sir Charles Portal, directed Harris to experiment with night precision strikes against twelve German aircraft component factories and six railroad marshalling yards. These were very successful and even Harris had to concede complete satisfaction with the results.³⁷

In frustration, Eisenhower called for a stakeholder meeting to finalize the air campaign concept leading up to the Normandy landings. On 25 March, 1944, Portal chaired the meeting and brought a high degree of clarity to the proceedings, ensuring all got their say but that free discussion of the issues and various interpretations of the supporting intelligence and analysis were aired.³⁸ Eisenhower, while agreeing that Germany's oil production capacity had to be the primary target, also supported Tedder's transportation targeting plan as the second priority since he believed it would provide the best chance to help the Allies get ashore on D-Day and stay there. Following the 25 March decision, Tedder created the Transportation Targets Committee, which would later become the Railway Targets Committee. Focused on planning attacks against rail facilities in France before D-Day, its efforts were justified after the invasion in an all-source intelligence report, dated 6 July, which said: "The evidence is already conclusive that these operations have had a disastrous effect on enemy logistics."³⁹

³³ John F. Kries, General Editor, *Piercing the Fog: Intelligence and Army Air Force Operations in World War II* (Washington DC: Air Force History and Museums Program, 1996), 188.

³⁴ Ehlers, *Targeting the Third Reich: Air Intelligence and the Allied Bombing Campaigns*, (Lawrence, KS: University of Kansas Press, 2009), 188.

³⁵ Robin Neillands, *The Bomber War: The Allied Air Offensive Against Nazi Germany* (New York: The Overlook Press, 2001), 313.

³⁶ Ibid.

³⁷ Ibid, 313-314.

³⁸ Eisenhower, 184-190

³⁹ Neillands, 225.

While there were many intelligence sources the Allies leveraged in understanding how the German strategic logistical system worked and how Allied actions affected it, the deployment of Ground Survey Teams into the field to assess bombing impacts on German transportation proved essential in refining Tedder's and Zuckerman's understanding of this Nazi vulnerability. American and British intelligence specialists, along with French Operations Research personnel, provided reports essential to learning how the Germans conducted rail operations, particularly regarding damage mitigation and repair measures. Marshalling yards, particularly locomotive repair shops, were again shown to be the critical node to attack. But would this same understanding of enemy critical vulnerability, demonstrated in France, prove to be true regarding German strategic logistics in the Nazi homeland?

Tedder and Zuckerman were convinced that it was.⁴⁰ Through careful analyses of many sources, to include the ground-survey reports and captured railway records, they challenged prevailing conventional wisdom in another stakeholder meeting on 24 October, 1944. While Eisenhower again sided with Spaatz and others maintaining oil infrastructure bombing as the first priority for strategic strike, Tedder's insistence that transportation attacks must be accelerated nonetheless, coupled with his persuasive analyses, were convincing enough for participants to create a new working committee on transportation on the 29th. Tedder's 25 October 1944 plan called for complementary ground and air action that would bring the Reich transportation system to its breaking point. Continuous and sustained ground action would create heavier enemy demands for petroleum products, ammunition, and supplies, while persistent air bombardment against both oil and transportation targets would exponentially degrade German logistical effectiveness to the point where the Nazi national economy would collapse and with it, German forces in the field. It is interesting to analyze Eisenhower's oft-criticized decision to maintain a "broad front" ground offensive in light of this. A descendant of the Railway Targets Committee, the new Combined Strategic Targets Committee Working Committee (Communications) executed assessment functions and targeting recommendations.

Skillful Allied concentration on bombing Reich national transportation in Germany began to tell in short order. By 23 November, it became clearer that oil and transportation infrastructure strikes, particularly the marshalling yards of the *Reichsbahn*, was having marked impact on German economic functioning when conducted in tandem. On 19 February, Supreme Headquarters, Allied Expeditionary Force G-2, assessed that "...the entire enemy industrial output is in grave jeopardy as a result of increasing inability of the enemy's communications....to meet the demands made upon them." Eisenhower's intelligence staff recommended that it was "...all the more urgent that as much effort as possible should be directed as soon as possible against the Ruhr communications."⁴¹ One modern historian credits the transportation

⁴⁰ Ibid, 344.

⁴¹ Ibid, 324.

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attacks as breaking down within four months of the start of the bombing, critically disabling coal distribution and creating conditions where “every form of industrial production was in decline or had ground to a halt.”⁴²

There was never any doubt that effectively attacking German oil infrastructure would degrade the military capability of *Wehrmacht* forces in the field. Not only was Tedder’s key understanding of the criticality and vulnerability of German transportation important to accelerating this degradation, Portal’s ability to reconcile alternative viewpoints into a cohesive understanding of the environment proved sufficient for Eisenhower’s decision on unified coalition design for the air offensive, leading to decisive results in action.

⁴² Alfred C. Mierzejewski, *The Collapse of the German War Economy, 1944-1945: Allied Airpower and the German National Railway* (Chapel Hill, NC: University of North Carolina Press, 1988), xi.

FAILURE IN UNDERSTANDING THE ENVIRONMENT: The Viet Cong Order Of Battle Controversy, 1967

In late 1966, the Secretary of Defense, Robert McNamara, learned that the Military Assistance Command Vietnam (MACV) Commander General William C. Westmoreland's strategy of attrition was not reaching its goal. American and South Vietnamese action against the communist Viet Cong (VC) guerrillas operating in South Vietnam had not yet created the "crossover point"—the point where enemy insurgent losses were greater than they could be replaced. Late in November, Presidential assistant Robert Komer told McNamara that he disagreed, although he knew of Central Intelligence Agency efforts indicating that "a reappraisal of the strength of communist regular forces which is currently underway indicates that accepted (i.e., MACV) estimates of the strength of Viet Cong irregular forces may have drastically underestimated their growth, possibly by as much as 200,000 persons."⁴³

What was going on? Sam Adams, a junior CIA analyst, had returned from information gathering trips in Vietnam in early 1966, trying to figure out why the crossover point had not been reached. His analysis of captured VC documents did not make sense. If the enemy's own statistics on desertions and defections were to be believed, then the crossover point should have been reached a long time earlier. So it had to be that the estimated VC order of battle—the organization and strength of the indigenous enemy guerrillas—everyone had been working from was wrong.

The VC order of battle (OOB) estimate had been changing for quite some time. Sam Adams's colleague at CIA, George Allen, had wrestled with the J2 of Westmoreland's predecessor, General Harkins, over the figures when the interagency Joint Evaluation Center was set up at MACV in the early 1960s. Allen was then employed by the Defense Intelligence Agency (DIA) and was critical of MACV J2 analytical methods. Allen's criticisms were not welcome by the military intelligence officers, especially since Allen was not part of the command and was a civilian. DIA was being cut out of the picture by the MACV and the experience soured Allen who transferred to CIA. Allen was an old Indochina hand and was interested in understanding what was termed "Viet Cong Infrastructure" (VCI)—what fielded, fed, trained, and supplied the main force guerrillas that MACV naturally focused on.

Trouble was, MACV J2 hadn't been tracking the VCI. They tracked main force guerrilla units. Both Allen and Adams quickly realized this was the source of the problem—"body count," desertion, and defection was happening in both enemy main force units and the VCI. But only the main force unit strengths and organization were being articulated in the official MACV VC OOB estimates.

⁴³ C. Michael Hiam, *Who the Hell Are We Fighting? The Story of Sam Adams and the Vietnam Intelligence Wars* (Hanover, NH: Steerforth Press, 2006), 81.

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The stage was set for a clash between the Washington CIA analysts and the MACV military intelligence organization with “boots on the ground.” Westmoreland saw the VC and North Vietnamese Army main force units as the “roots of the struggle” and the guerrilla militia and political elements as “the vines,” possibly because of then-contemporary American understanding of how Mao’s Red Army had fought and won the Chinese Civil War after the Second World War.⁴⁴

After a meeting on 6 February, 1967, in Honolulu between stakeholders on the VC OOB issue, the MACV J2, Brigadier General Joseph A. McChristian, directed an effort to improve VC OOB estimating, incorporating new standards that Adams endorsed. But a deal had been reached between CIA’s leadership and the J2 that MACV’s estimates would be considered authoritative. The numbers had not changed despite what seemed to be new methods.⁴⁵

At the White House in April, 1967, General Westmoreland assured President Johnson that “the VC/NVA 287,000 order of battle is leveling off” and that “as of March, we reached the ‘cross-over point’—we began attriting more men than Hanoi can recruit or infiltrate this month.” But after he returned to Saigon, McChristian came in during the second week of May to see him with revised figures that the OOB wasn’t what everyone thought—it was probably closer to half a million, which included the VCI. Westmoreland just looked at his J2 and said, “If I send that...to Washington, it will create a political bombshell.” One of the J2’s MI colonels, Gains B. Hawkins, who briefed the MACV commander in more detail on 28 May remembered that Westmoreland ...”voiced concern about the major increase in the irregular forces and infrastructure that we had found. He expressed concern about possible public reaction to the new figures—that they might lead people to think we had made no progress in the war.” Lieutenant Kelly Robinson recalled Westmoreland saying, “What am I going to tell Congress? What is the press going to do with this? What am I going to tell the President?” McChristian transferred to Fort Bragg three weeks later.⁴⁶

Matters came to head when coordinating the Special National Intelligence Estimate (SNIE) 14.3-67 on communist ability to prolong the war. Intended for the President and the Joint Chiefs of Staff, the debate pit CIA analysts on one side with DIA and MACV on the other. Despite meeting after meeting to get resolution on the issue, progress was deadlocked. As George Allen remembers it, the new MACV J2, Phillip B. Davidson was particularly strident on the matter of OOB numbers above the 300,000 “line.”⁴⁷

⁴⁴ Hiam, 71.

⁴⁵ Hiam, 90-96.

⁴⁶ Hiam 100-102.

⁴⁷ George W. Allen, *None So Blind: A Personal Account of the Intelligence Failure in Vietnam* (Chicago, Ivan R. Dee, Publishers, 2001), 249.

George Carver, the senior CIA delegate, offered a compromise SNIE position to Westmoreland to achieve intelligence community consensus and eliminate potential sources of confusion. Only “main force” units would be covered by statistics, and when SNIE 14.3-67 was published, total Viet Cong were listed at 188,000 to 208,000. Nevertheless, Director of Central Intelligence Richard Helms felt uncomfortable enough with the SNIE OOB controversies that he wrote the following in the cover memo attached to the version sent to the President:

“The new estimate is sensitive and potentially controversial primarily because the new strength figures are at variance with our former holdings.... I have considered not issuing this Estimate and after considerable consultation, believe this would be a mistake.... In short, the charge of bad faith or unwillingness to face the facts would be more damaging than the issuance of this document which can stand on its own feet.”⁴⁸

On 15 November, 1967, Westmoreland flew to Washington DC. The briefing he presented characterized many of the VCI organizations as “home guards” who were part-time participants, often unarmed, including “personnel of all ages” with “a high percentage of females.” In the view of MACV, these “essentially low grade fifth columnists” were judged to “not represent a continual or dependable force and do not form a valid part of the enemy’s military forces.” The State Department’s William Bundy remarked that this was not a good assessment when it seemed clear that “...these forces do inflict casualties and are also included in the military loss totals on a regular basis.”⁴⁹

The press covered Westmoreland’s reports that the cross-over point had been reached and the VC were increasingly forced to fill the ranks of the South Vietnamese guerrillas with levies from the North. While some in the press questioned the strength estimates, by the end of 1967 it appeared to many Americans that, indeed, “the end begins to come into view.”⁵⁰

The communist Tet Offensive in January 1968 changed everything. A major miscalculation in Hanoi and in the senior leadership of the VC, the Tet offensive aimed to empower mass uprisings in the cities against the Saigon regime but instead turned into a major communist military disaster. Indigenous VC main force units as well as the VCI cadres were gutted after Tet—and as Westmoreland had predicted—VC losses could only be made good by bringing in replacement drafts from the North.⁵¹ But political reverberations in the United States made such an Allied victory ring hollow. Robert McNamara’s February replacement as Secretary Defense, Clark Clifford, judged

⁴⁸ Ibid, 252.

⁴⁹ John Prados, *The Hidden History of the Vietnam War* (Chicago: Ivan R. Dee, 1998), 126-127.

⁵⁰ Hiam, 124-126.

⁵¹ Don Oberdorfer, *Tet! The Turning Point of the Vietnam War* (New York: Da Capo Press, 1971), 329.

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that the negative repercussions within American public opinion were not due to journalists or the protesters: "Our policy failed because it was based on false premises and false promises."⁵² In March, President Johnson announced on national television he would not run for re-election that year.

Phillip Davidson summed up the controversy in his retrospective:

"...unrecognized in 1967 and later by the participants, the fundamental question in dispute was not what was the composition and strength of the enemy force opposing the United States in Vietnam, but in mid-1967 what phase of revolutionary war was the enemy in, and towards what phase was he moving? Adams, the anchor of the CIA position, and his CIA cohorts believed that the war in 1967 was a Phase I insurgency. Even as late as 1975, Adams maintained that the war in the South in 1967 was an insurgency. McChristian took this same position. Their insistence, then, in including the Communist political infrastructure...in the Enemy Order of Battle made sense if the war was, in reality, a Phase I insurgency. In fact, in such an insurgency these civilian/political elements should have been emphasized over the enemy's main force and local force units.

On the other side of the controversy, Westmoreland and the MACV staff sensed, largely by intuition, that the war had already progressed from a Phase I insurgency into a Phase II (a combination insurgency and conventional war) and was swiftly moving towards Phase III (conventional war)...Seeing a conventional war in the offing, the MACV staff emphasized the enemy's main and local force units as the key elements of enemy strength. The guerrillas and the civilian elements of the enemy force structure were remnants of a past phase and were of minor relevance to the conventional war which was fast approaching.⁵³

The VC never recovered their former capabilities after the 1968 Tet Offensive. Subsequent Communist offensives against South Vietnam in 1972 and 1975 were waged primarily by conventional forces fighting in conventional warfare styles.

⁵² Clark Clifford and Richard Holbrooke, *Counsel to the President: A Memoir*, (New York: Random House, 1991), 473-474.

⁵³ LtGen Phillip B. Davidson, USA (Ret.), *Secrets of the Vietnam War* (Novato, CA: Presidio Press, 1990), 67.

**FRAME THE PROBLEM:
The Decision For The Inchon Landings, 23 August, 1950**

Within four days of the opening of the Korean War in 1950, General of the Army Douglas MacArthur began to conceive of an amphibious counterstroke such as the kind he mounted against the Japanese in the South West Pacific Area in World War II. On 2 July, a little over a week since the war began, MacArthur, his Chief of Staff MG Edward "Ned" Almond, and G3 BG Edwin K. "Pinky" Wright's Joint Strategic Plans and Operations Group (JPSOG) began planning for OPERATION BLUEHEARTS, an amphibious assault to take place on 22 July at the port of Inchon, using the Army's 1st Cavalry Division and a regimental combat team from the Marines.⁵⁴ But the situation became so grave on the Korean peninsula that both the Marine RCT and 1st Cavalry Division had to be committed to bolster LTG Walton Walker's Eighth U.S. Army on the congealing Pusan Perimeter, thus spelling the end to BLUEHEARTS. Nevertheless, MacArthur did not give up on his idea of landing at Inchon. This latest evolution was termed OPERATION CHROMITE.

Despite MacArthur's enthusiasm for this plan, other senior leaders had misgivings. Chairman of the Joint Chiefs of Staff General Omar Bradley and the Chief of Staff of the Army, General J. Lawton "Lightning Joe" Collins, were both veterans of the European Theater of Operations. They readily recalled a similar concept attempted on the Italian peninsula in 1944—OPERATION SHINGLE, an amphibious landing at Anzio which was intended to break open an operational stalemate south of the landing but failed, becoming a drain on theater resources to prevent it from being thrown back into the sea. The Joint Chiefs of Staff pressed MacArthur for details on his plans when he expressed displeasure at their proposed timeline for introduction of the 1st Marine Division into the war. MacArthur neatly summed up his views—without mentioning Inchon—in his response:

"Operation planned mid-September is amphibious landing of a two division corps in rear of enemy lines for purpose of enveloping and destroying enemy forces in conjunction with attack from south by Eighth Army. I am firmly convinced that early and strong effort behind his front will sever his main lines of communication and enable us to deliver a decisive and crushing blow...The alternative is a frontal attack which can only result in a protracted and expensive campaign."⁵⁵

⁵⁴ D. Clayton James, *The Years of MacArthur: Triumph and Disaster, 1945-1964* (Boston: Houghton-Mifflin Publishers, 1985), 465.

⁵⁵ Robert Debs Heinl, Jr., Colonel, USMC, *Victory at High Tide: The Inchon-Seoul Campaign* (Baltimore, MD: The Aviation and Nautical Publishing Company of America, 1979), 24.

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For senior Army leaders Bradley and Collins, this looked a lot like Anzio; it even appeared to be roughly the same size—a two-division Corps attack—for a similar purpose. If this were not enough, even MacArthur's subordinate commanders involved in CHROMITE planning had their doubts regarding the chosen landing site. The physical characteristics of the environment at Inchon were daunting: (1) one of the largest tidal variations in the world—a 32-foot range between high and low tide; (2) a low tide revealing mud flats and swampy bottomlands which would bog amphibious ships and landing craft; (3) fast currents which rarely were below three knots, making landing craft maneuvering difficult; (4) only one major approach channel which dead-ended and could be easily blocked by a sunken or disabled ship; (5) little sea-room to maneuver; (6) a hydrography that lent itself to mining operations; (7) high ground and terrain that could provide cover, concealment, and good line of sight for land-based coastal artillery; and (7) no beaches that were worthy of the name—landing areas were seawalls at the port sites and rocky outcroppings with patches of sand at Wolmi-Do island. U.S. Navy officers had little positive to commend this landing site. Vice Admiral Arthur D. Struble, commander of the U.S. Seventh Fleet, commented, "If ever there was an ideal place for mines, it was Inchon." Commander Monroe Kelly observed, "Make up a list of amphibious 'don'ts,' and you have an exact description of the Inchon operation." Lieutenant Commander Arlie G. Capps provided the most famous assessment: "We drew up a list of every natural and geographic handicap—and Inchon had 'em all." Even MacArthur's Chief of Staff, MG Almond, admitted that Inchon was "...the worst possible place we could bring in an amphibious assault." If that was not enough, tidal characteristics were best on 15 September—providing the most water over the mudflats—and would not be so good again until 11 October. The operation had to be mounted then if the Pusan Perimeter was to be given significant succor.

There was little disagreement regarding the understanding of the environment. Eighth Army was fighting for its life to maintain the Pusan Perimeter against NKPA offensives. Inchon was a terrible place to conduct an amphibious assault given the physical conditions there. The issue was describing the problem in such a way that the solution appeared obvious. For MacArthur, the solution was obvious. The challenge was articulating the problem in such a way that all could see how well CHROMITE would solve it.

There were certainly other options on the table for consideration. BG Wright's JPSOG came up with two others apart from Inchon: one concept called for an amphibious assault at Kunsan, the second, at Chumunjin on the east coast.

General Collins and Admiral Forrest Sherman, the Chief of Naval Operations, were sent on a fact-finding trip by the JCS to MacArthur's headquarters in Tokyo. Sherman was able to speak with VADM Struble in Sasebo, telling him that he supported the Inchon concept despite the difficulties.⁵⁶

⁵⁶ Ibid, 39-40.

At 1730, on 23 August, the senior officers gathered in the paneled sixth-floor conference room between MacArthur's and Almond's offices. Admiral Sherman was there, as were Generals Collins and Edwards representing the JCS; Admirals Arthur D. Radford (Commander, U.S. Pacific Fleet), VADM Turner Joy (Commander, U.S. Naval Forces Far East and MacArthur's naval commander), and RADM James H. Doyle (Commander, TF 90); Major Generals Almond (designated X Corps commander for CHROMITE), MG Doyle O. Hickey (Deputy Chief of Staff), Clark L. Ruffner (Chief of Staff, X Corps), and BG Wright. Neither Marine generals Lemuel C. Shepherd Jr. of Fleet Marine Forces Pacific nor Oliver P. Smith, the 1st Marine Division commander, were invited to attend. The meeting kicked off with an 80-minute long description of all aspects of the amphibious operation by nine officers from Amphibious Group 1. RADM Doyle concluded the presentation with the comment to MacArthur, "General, I have not been asked nor have I volunteered my opinion about this landing. If I were asked, however, the best I can say is that Inchon is not impossible." MacArthur responded that if the amphibious force could not make it, they'd then have to withdraw. Doyle replied that they could not: "Once we start ashore, we'll keep going."⁵⁷

Collins then brought up other options—why not land at Kunsan, to the south? Why not Posun-Myong, just below Seoul? It was not long after this exchange that MacArthur rose from his chair and gave a compelling explanation of how he saw the military problem. It took him 45 minutes, was conducted completely without notes, and was characterized by those present as "one of the most compelling declarations of his career." According to MacArthur himself, the major points to his audience were these:

"The bulk of the Reds are committed around Walker's defense perimeter. The enemy, I am convinced, has failed to prepare Inchon properly for defense. The very arguments you have made as to the impracticability involved will tend to ensure for me the element of surprise. For the enemy command will reason that no one would be so brash as to make such an attempt. Surprise is the most vital element for success in war...."

The Navy's objections as to tides, hydrography, terrain, and physical handicaps are indeed substantial and pertinent. But they are not insuperable. My confidence in the Navy is complete, and in fact I seem to have more confidence in the Navy than the Navy has in itself. The Navy's rich experience in staging the numerous amphibious landings under my command in the Pacific during the late war, frequently under somewhat similar difficulties, leaves me with little doubt on that score.

As to the proposal for a landing at Kunsan, it would indeed eliminate many of the hazards of Inchon, but it would be largely ineffective and indecisive.

⁵⁷ Ibid, 40.

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It would be an attempted envelopment which would not envelop. It would not sever or destroy the enemy's supply lines or distribution center, and would therefore serve little purpose. It would be a "short envelopment," and nothing in war is more futile. Better no flank movement than one such as this. The only result would be a hookup with Walker's troops on his left. It would be better to send the troops directly to Walker than by such an indirect and costly process. In order words, this would simply be sending more troops to help Walker "hang on," and hanging on was not good enough. No decision can be reached by defensive action in Walker's perimeter. To fight frontally in a breakthrough from Pusan will be bloody and indecisive. The enemy will merely roll back on his lines of supply and communication.

But seizure of Inchon and Seoul will cut the enemy's supply line and seal off the entire southern peninsula. The vulnerability of the enemy is his supply position. Every step southward extends his transport lines and renders them more frail and subject to dislocation. The several major lines of enemy supply from the north converge on Seoul, and from Seoul they radiate to the several sectors of the front. By seizing Seoul I would completely paralyze the enemy's supply system—coming and going. This in turn would paralyze the fighting power of the troops that now face Walker. Without munitions and food they will soon be helpless and disorganized, and can easily be overpowered by our smaller but well-supplied forces.

The only alternative to a stroke such as I propose will be the continuation of the savage sacrifice we are making at Pusan, with no hope of relief in sight. Are you content to let our troops stay in that bloody perimeter like beef cattle in the slaughterhouse? Who will take the responsibility for such a tragedy? Certainly, I will not...

If my estimate is inaccurate and should I run into a defense with which I cannot cope, I will be there personally and will immediately withdraw our forces before they are committed to a bloody setback. The only loss then will be my professional reputation. But Inchon will not fail. Inchon will succeed...⁵⁸

The next day, the Admirals and Marine Generals Shepherd and Smith met in VADM Joy's office for a meeting. They agreed that the Army planners weren't fully considering the difficulties involved in Inchon and that another, better, landing area had

⁵⁸ Douglas MacArthur, General of the Army, *Reminiscences* (New York: McGraw-Hill Book Company, 1964), 349-350.

to be found that could serve just as well in cutting off the North Korean supply lines. “Nothing of a concrete nature developed,” noted Shepherd, who was able to subsequently meet with MacArthur. Shepherd and Almond had a conversation prior to that meeting where Shepherd learned that Seoul was the real objective and Inchon had been decided upon. MacArthur walked in after 45 minutes and led the Marine general to his office. Shepherd brought up his wish for an alternative objective for CHROMITE, but MacArthur responded with a 30 minutes explanation why Seoul had such strategic importance, given the situation. He finished his analysis with, “For a five dollar ante, I have an opportunity to win \$50,000, and I have decided that is what I’m going to do.”⁵⁹

JCS telegraphed MacArthur on 29 August: “We concur after reviewing the information brought back by General Collins and Admiral Sherman in making preparations and executing a turning movement by amphibious forces on the west coast of Korea, either at Inchon in the event the enemy defenses prove ineffective, or at a favorable beach south of Inchon if one can be located....We understand that alternative plans are being developed to best exploit the situation as it develops.”⁶⁰

OPERATION CHROMITE was executed as planned on 15 September. When Walker launched his breakout offensive from the Pusan perimeter the next day, he was rebuffed. On the USS Mount McKinley, MacArthur held a conference on 19 September with Admirals Struble and Doyle, Generals Shepherd and Almond, and other senior leaders, telling MG Wright to dust off the plan for the Kunsan landing as it appeared Walker was going nowhere. News began to filter in that same time that the North Koreans opposite Walker were crumbling; they began a retrograde that quickly degenerated into rout. Seoul was declared liberated on 25 September. The first of Walker’s ground units linked up with CHROMITE elements just north of Osan on 27 September. The Kunsan landing never occurred.⁶¹

⁵⁹ Heintz, Jr., 43.

⁶⁰ William Manchester, *American Caesar: Douglas MacArthur, 1880-1964* (Boston: Little, Brown, and Company, 1978), 576.

⁶¹ James, 481.

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FAILURE TO DEVELOP THE OPERATIONAL APPROACH: Planning The German Invasion Of The Soviet Union, 1940-1941

With the unexpectedly rapid fall of France and the inability to successfully mount an invasion of the British Isles, the Nazi leadership in the summer of 1940 began to consider possibilities for invading the Soviet Union. General scorn regarding Soviet military capabilities were reflected in initial estimates—in the words of the Chief of Operations for the German joint staff, “The Russian colossus will be proved to be pig’s bladder; prick it, and it will burst.” Adolf Hitler saw the campaign’s goal to be “destruction of Russian manpower.” As early as July 1940 he envisioned a three-pronged offensive—one towards the recently Soviet-annexed Baltic States and Leningrad in the north, one towards Moscow in the Center, and one towards Kiev in the south—with all three prongs linking up after achieving their initial objectives. After that, an offensive against the Caucasus oilfields would occur.⁶²

But the Army Chief of Staff, General Franz Halder, had a different idea: “The best chance of success lie in an operation in the direction of Moscow with flank on the Baltic Sea, which, subsequently by a drive from the north, compels the Russian concentrations in the Ukraine and on the Black Sea to accept battle on an inverted front.”⁶³ He gave the task of planning the operation to General Erich Marcks who abandoned Halder’s concept and unwittingly provided a concept very close to that of Hitler in his first draft. Halder’s critique established the primacy of Moscow as the aim point for the operational main effort; it was there he expected the Russian Army to make its final defensive stand. The German offensive had to lure all forces to a killing ground in front of the Soviet capital; in this way, the goal of destroying Soviet manpower would be achieved.⁶⁴ In his revised draft, Marcks conceded that Moscow was “the economic, political, and spiritual center of the USSR” and that “its capture would destroy the coordination of the Russian state.” Nevertheless, he understood the purpose of the campaign to “...strike the Russian Armed Forces and to make Russia incapable of entering the war as an opponent of Germany” and he noted that “The main centres of the Russian war economy lie in the food and raw-material producing areas of the Ukraine and Donets Basin and in the armament industries of Moscow and Leningrad.”⁶⁵

With that understanding, Marcks proposed two major groupings of ground forces—one attacking north of the Pripyat Marshes, aimed against Leningrad and Moscow, and one advancing south of the huge swamps, heading for the economic areas there. General Friedrich Paulus, Halder’s new Deputy Chief of the Army General

⁶² Matthew Cooper, *The German Army, 1933-1945: Its Political and Military Failure* (New York: Stein and Day, 1978), 259.

⁶³ Charles Burdick and Hans-Adolf Jacobsen, Editors. *The Halder War Diary, 1939-1942* (Novato, CA: Presidio Press, 1988), 26 July 1940 entry, 233.

⁶⁴ Cooper, 260.

⁶⁵ *Ibid*, 261.

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Staff, modified the concept to include three army groups, once again coming back to Hitler's original idea. But during Paulus's November and December wargames of the plan, the primacy of Moscow was such that Army Groups North and South would play a supporting role, ensuring Army Group Center could advance unhindered as the main effort. The Chiefs of Staffs for the designated army groups concurred in this operational approach. So the Army staff felt very confident when they presented their plan to Hitler on 5 December, 1941.⁶⁶

"Moscow is of no great importance," Hitler remarked. Instead, Hitler wanted the offensive approach to "...destroy the sources of enemy war potential (armaments industries, mines, oilfields)" to achieve the campaign goal of "crushing...Russian manpower." To Hitler, the advances were to be strong to pierce through the Soviet defenders and create huge pockets near the frontier, just like what had been done in Poland and France. The fear was that Russian soldiers would do what they did against Napoleon in the early stages of 1812—they would retreat and sacrifice space for time. In Hitler's mind, only after the bulk of the ground forces were destroyed could territorial objectives be captured. Of these, the economic centers took priority.⁶⁷

In Hitler's view, the main entrapment should occur in the Baltic region. A joint staff study authored by Lieutenant Colonel Losssberg, dated 13 September, suggested as much. It would also be necessary to weight the attack in the Baltics to assure sea supply for the northern drive and the Soviets could be expected to defend the Baltic ports vigorously. In his Direction 21 for OPERATION BARBAROSSA, dated 18 December 1941, Hitler articulated this concept, arguing that only after the seizure of Leningrad and the Russian naval port of Kronstadt could attention then be turned to Moscow.⁶⁸

Senior Army leaders remained silent. Hitler's objectives were incorporated into the Army Staff's deployment order of 31 January 1941, even though all the Army leadership saw Moscow as the main objective. The thinking in that headquarters was the situation would sort itself when the campaign was finally mounted; it would then be clear that Moscow should be the main object. As General Warlimont recalled: "...their reasoning was that, in time, the course of the campaign would compel even Hitler to go back to the original Army concept. This was to a certain extent taking the easy way out and it proved to be no more than self-deception."⁶⁹

The field commanders charged with the functional and detailed planning could not square the circle posed by the 31 January deployment order. While Hitler's commander's intent was clearly stated, the concept of operations and missions

⁶⁶ Ibid, 262-263.

⁶⁷ Burdick and Jacobsen, 5 December 1940 entry, 293-294

⁶⁸ Cooper, 264.

⁶⁹ General Walter Warlimont, *Inside Hitler's Headquarters, 1939-1945* (Novato, CA: Presidio Press, 1964), 138-139

contradicted it. For example, Army Group Center was ordered to attack towards Minsk and Smolensk on the road to Moscow; only when both cities were seized might there be actions to cooperate with and support Army Group North in trapping Soviet forces and seizing Leningrad “at the appropriate time.”⁷⁰

Not only was there a schizophrenic concept regarding the strategic and operational level objectives and priorities, the ways the German army would be employed were contentious. Both Hitler and the Army Staff plan aimed to create huge battles of encirclement, which had been a staple of German war planning since 1866; however, following the Poland and France “formula,” large formations of both infantry and panzers would do it. Close cooperation between the slow infantry and fast armor was essential to create tight rings around the enemy. But the Army planners were from infantry and artillery backgrounds and such concepts seemed to others as overly cautious. The panzer generals, Heinz Guderian foremost among them, had a different concept for winning the war in the East, as the Chief of Staff, 4th Army, related:

“...drive deep, as fast as possible, and leave the encircling of the enemy to be completed by the infantry forces that were following up. Guderian urged the importance of keeping the Russians on the run, and allowing them no time to rally. He wanted to drive straight on to Moscow, and was convinced that he could get there if no time was wasted. Russia’s resistance might be paralysed by the thrust at the center of Stalin’s power....Guderian’s plan was a very bold one - and meant big risks in maintaining reinforcements and supplies. But it might have been the lesser of two risks. By making the armoured forces turn in each time, and forge a ring around the enemy forces they had by-passed, a lot of time was lost.”⁷¹

But this was not accepted in the final army plan. In general, there would be no “cutting loose” the Panzer Groups from the Infantry Armies they were intended to support. In both Poland and France, the Allies had been obliging in keeping their forces close to the frontier with little additional mobilized forces to constitute a significant operational reserve or otherwise add depth to their defenses. In the 1940 France campaign, both Guderian and Rommel plunged their panzer formations ruthlessly forward with little regard for their flanks, significantly contributing to the shock of the attack. European Russia was over twenty times the land mass of Metropolitan France and the Germans would only have 15 more divisions to employ in the 1941 invasion of Russia than they had in the 1940 invasion of France.⁷²

⁷⁰ Cooper 265-266.

⁷¹ Sir Basil H. Liddell-Hart, *The German Generals Talk*, (New York: William Morrow & Company, 1948), 180.

⁷² Cooper, 270.

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Such divisions in strategic and operational approaches were papered over in silence during the final planning stages for the invasion, but quickly came into the open once the campaign achieved its initial objectives of defeating the Soviet Red Army in the border regions and German panzer formations leapt into the Russian interior. Soviet capabilities in mobilizing new units, however hastily formed, trained, and thrown into the path of the German invaders, posed dilemmas to the German leadership that required time to resolve. Should the panzers close the pockets of Russian soldiers to keep “leakers” from escaping or should they race ahead to interfere with the formation of defensive lines by newly arriving mobilized Soviets?

This problem reared its head during the Smolensk battles in July 1941; Panzer Group commanders Guderian and Hermann Hoth wanted to drive to Moscow but could not fully sew up the pockets of trapped Soviet troops if they did so. Hitler, the Army Group Center commander, and the 4th Army commander, wanted to close the rings they were forming around the Russians. Trying to do both ensured neither was accomplished satisfactorily and it took time to reach a solution. Eventually the pockets were sealed and the positions intended for the continued advance to Moscow abandoned in the face of bloody Soviet counterattacks.⁷³

Tactical necessities to “crush Russian manpower” along the campaign meant the overall operational objectives of OPERATION BARBAROSSA were eventually sacrificed. Neither Leningrad nor Moscow were ever taken by the Germans, and the industrial centers in the Ukraine were momentarily seized but then relinquished again in the winter of 1941. When Hitler tried to take those plus the Caucasus oilfields in 1942, he overreached himself and found his own forces encircled at Stalingrad. Never again would the USSR be threatened with conquest—in 1943 it was then the Germans’ turn to worry for their survival.

⁷³ David M. Glantz and Jonathan House, *When Titans Clashed: How the Red Army Stopped Hitler* (Lawrence, KS: University of Kansas Press, 1995), 60.

DEVELOP THE OPERATIONAL APPROACH: Planning For Operation Anvil-Dragoon, 1943-1944

As the British and American allied powers considered options to conquer the continent of Europe from the Nazis occupiers, plans for an amphibious assault across the English Channel into France (SLEDGEHAMMER, then ROUNDUP, and finally OVERLORD) were complemented by a simultaneous landing on the south of France (ANVIL). The military problem was a simple one; the Germans could not be allowed to mass their still considerable military power against the cross-channel main effort, stalemating it or—at worst—throwing it back into the sea. To solve this problem, a number of supporting efforts would be necessary to distract Nazi leaders and keep them from significantly reinforcing against any major assault. One would eventually be a major deception operation, codenamed FORTITUDE. Another would be to get assurances from the Soviets that they would time a major offensive on the Russian Front coincident with the invasion of Europe. Yet another would be a strategic air campaign against German logistical lines of communications. There would also have to be the threat of more landings and ground offensives elsewhere in Western Europe that the Germans would be concerned about.

As simple as these ends were, the ways and means for mounting OPERATION ANVIL would prove elusive until just after D-Day.

British Prime Minister Winston Churchill, OVERLORD and ANVIL were complementary—and ANVIL was mandatory only so long as the assumptions behind it remained true. The first assumption was the idea that both operations could be conducted simultaneously to keep the Germans guessing which was the main attack. The other was the notion that there was no other good option open to the Allies other than ANVIL to keep Nazi forces from massing against forces conducting OVERLORD. There were other good reasons for ANVIL as well. French divisions under De Gaulle were better postured to enter France through the southern approach as they had been forming and training in North Africa. This would be far easier than having to transport them to an overcrowded southern England and from there to the continent, or to the continent directly from North Africa after OVERLORD established a lodgment. Originally, ANVIL had been conceived as an amphibious feint with but a single ground force division, but eventually became a large Franco-American operation involving ten divisions that were otherwise uncommitted in the Mediterranean. No Commonwealth ground divisions were involved.⁷⁴

But then the Allied understanding of the environment changed. In the fall of 1943, U.N. forces had bogged down in their ground offensive up the mountainous Italian peninsula well short of Rome. A proposed amphibious assault at Anzio—SHINGLE-- for early 1944 to break the deadlock was estimated to require more naval (particularly

⁷⁴ David Eisenhower, *Eisenhower At War, 1943-1945* (New York: Random House Publishers, 1986), 103

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amphibious lift), ground, and air forces than originally planned for. The British were keen on this particular amphibious “end-run” and the drive to Rome. Commitment of forces to this effort appeared to jeopardize feasibility of the ANVIL concept if it was to be mounted at the same time as OVERLORD, given the preparatory timelines of both.

American commitments in the Pacific—notably the Solomons Campaign—precluded transferring amphibious lift assets to the European Theater, which seemed to belie Roosevelt’s public “Germany First” strategy. If that wasn’t enough of a complicating factor, the requirement for amphibious lift in OVERLORD for the assault phase increased from three divisions to five as planning for the invasion of France progressed. The shortage of amphibious lift—particularly Landing Ship Tank (LST) assets—was judged so severe as to require postponement of OVERLORD.

On 21 January, 1944, General Eisenhower chaired a meeting with his allied deputies in London to discuss resource requirements for OVERLORD. SHINGLE was set to commence on the night of the 22nd. British General Bernard Law Montgomery opened the meeting with his assessment that OVERLORD was not feasible unless ANVIL was abandoned so that those amphibious lift resources could be made available for the cross-channel assault. Eisenhower countered that the Russians had been told that ANVIL would occur, seven French divisions in North Africa needed to get into the campaign and that would only happen through entering southern France. The Supreme Allied Commander maintained that ANVIL would be canceled “as a last resort” and only if he was convinced OVERLORD could not succeed otherwise. Admiral Bertram Ramsey, the Allied naval commander, backed up Montgomery’s assessment that the naval requirements could not be met if ANVIL was to go forward. The Allied air commander, Air Chief Marshal Leigh-Mallory, argued that cancelling ANVIL would provide needed airlift for the airborne assault phase of OVERLORD. None of Eisenhower’s commanders weighed in support of ANVIL.

Two options emerged as a way out of the impasse between Eisenhower and his deputies. One was to go back to the original idea for ANVIL—a single division amphibious feint. The other was to mount ANVIL later. Postponing ANVIL after executing OVERLORD offered a number of attractive advantages. First, scarce amphibious list and airborne assault assets could be shifted back from England to the Mediterranean to support ANVIL once it was certain that the OVERLORD force was ashore to stay. Secondly, a postponement gave U.N. forces in Italy more time to capture Rome if SHINGLE failed to accomplish that—and capturing Rome was a precondition to getting Churchill’s concurrence for ANVIL.

It was apparent just a few days after the meeting that SHINGLE indeed failed to accomplish what was set out for it. Worse, requirements to sustain the hemmed-in beachhead included a large amount of amphibious lift that were earmarked for ANVIL. In the minds of the British, this was an American problem—they could either transfer needed resources from the Pacific theater to solve the shortfall, or they could cancel ANVIL to do it. The British Chiefs of Staff saw the Italian theater as presenting the best option to tie down German divisions in ongoing operations; ANVIL would be an

unnecessary diversion and wasn't going to be linked adequately with OVERLORD given that these could not be mounted simultaneously and that the French Riviera was a long way from the beaches of Normandy.⁷⁵

American opinion on both sides of the Atlantic hardened in favor of ANVIL and wheels were set in motion to ensure the resources needed to execute it and OVERLORD were available. Grim determination persisted throughout the continuous bad news coming from the Anzio beachhead throughout January and early February, 1944. If anything, the deadlock in Italy convinced American decision makers that nothing good could come from pitting more strength against formidable enemy strength—a way around would have to be found. But American commitment to ANVIL would be matched with American commitment to providing more resources—provided their British allies concurred with the operational approach ANVIL represented. On 18 February, Eisenhower met once again with his deputies in London, and—this time—they agreed that ANVIL could be executed, provided the resources were found for it and OVERLORD to cover identified shortfalls. Eisenhower then presented his case to the British Chiefs of Staff; while he understood ANVIL would have to occur sometime after OVERLORD, there were still advantages to be reaped even beyond introducing the French divisions into the campaign. In his view, the Germans might strip the French Riviera defenses to try to contain the OVERLORD offensive; thus, even a two-division assault would provide an operational flanking maneuver that would greatly assist the liberation of France.

The British continued to insist that Italy was accomplishing in fact what ANVIL could offer in theory, and their insistence grew louder as American forces earmarked for the operation were kept from reinforcing exhausted divisions on the Italian peninsula. The Americans answered back that the Germans were capable of reorganizing their defenses to run an economy of force operation against the U.N. in Italy, freeing up as much as fifteen divisions for commitment elsewhere, divisions that ANVIL could attract instead of Normandy.⁷⁶

By April, planning for OVERLORD had gone far enough into the campaign that the advantages of a subsidiary landing in southern France were glaringly apparent. The Combined Chiefs of Staff made a compromise that the capture of Rome would be paramount with a review of ANVIL made on 15 June 1944. But without a British commitment to ANVIL, the JCS refused to make a commitment to diverting landing craft from the Pacific; Sir Alan Brooke vowed that history would never forgive the Americans “for bargaining equipment versus strategy and for trying to blackmail us into agreeing with them by holding the pistol of withholding landing craft at our heads.”⁷⁷

⁷⁵ Ibid, 129.

⁷⁶ Ibid, 181.

⁷⁷ Ibid, 193.

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The OVERLORD invasion and the offensive against Rome would succeed; ANVIL was set for execution in mid-August. But the British were never comfortable with this operational approach and continued to lobby for the primacy of the Italian offensive or landings in Greece or the Balkans that would pre-empt Soviet designs there as well as keep German forces away from France. The debate over ANVIL grew heated in June of 1944 as the British made their case for shaping the post-war political map of Europe to contain Stalin. Eisenhower had up to this point kept his options open on the ANVIL question as the tough fighting in the Normandy bocage raged on. ANVIL's execution date had been agreed for 15 August, but the British hoped it would be either cancelled or launched against the Balkans. On the evening of 23 June, Eisenhower made his final decision that ANVIL would go in against the southern coast of France and summed up his operational approach in a formal statement:

"OVERLORD is the decisive campaign of 1944. A stalemate in the OVERLORD area would be recognized by the world as a defeat, and the result on Russia might be far reaching. It is imperative we concentrate our forces in direct support of the decisive areas of northern France.

ANVIL, with an invasion of the Bay of Biscay precluded, then provides the most direct route to northern France where the battles of the Ruhr will be fought. Moreover, ANVIL initially will contain an appreciable number of German divisions, will give us a port through which reinforcements from the U.S. can be deployed, and will open a route for an advance to the north where these reinforcements can fight on the main battlefield of France.

...France is the decisive theater. This decision was taken long ago by the Combined Chiefs of Staff. In my view, the resources of Great Britain will not permit us to maintain two major theaters in the European War, each with decisive missions."⁷⁸

The British would continue to press for abandonment of the southern France landing concept until the commencement of the 15 August DRAGOON amphibious assault by the U.S. Seventh Army on the Riviera coast against weak German defenses. In less than a month, this force drove up the Rhone valley and linked up with the OVERLORD forces racing across France at Dijon. A "considerable number" of German divisions were thus trapped in Southwestern France.⁷⁹ With many of the Channel ports still in German hands, a third of the total supply allocations for the forces in France eventually came through Marseilles, once the Rhone railway was repaired. U.N. forces in Italy continued their slow, grinding offensive up the northern portion of the peninsula.

⁷⁸ Ibid, 318.

⁷⁹ Dwight D. Eisenhower, *Crusade In Europe* (New York: Doubleday and Company, 1948), 310.

FAILURE TO REFRAME THE PROBLEM: The Beirut Intervention To The Marine Barracks Bombing, 1983

The Israeli invasion of southern Lebanon commenced on 6 June 1982 and was designed to remove the threat of the Palestinian Liberation Organization (PLO) operating in the area, pushing them 40 kilometers north of the Israeli-Lebanese border. The U.S., French, and Italians responded by sending in the Multi-National Force (MNF) of peacekeepers into Beirut in August and September, evacuating over 14,000 PLO combatants out of the country to Tunisia, Yemen, Jordan, and Syria. On 8 September, the newly-elected, Israeli-supported Christian Phalangist President of Lebanon was assassinated by a member of the Syrian Social Nationalist Party. The next day the Israelis moved into West Beirut. Despite assurances by the Americans to the PLO leadership that refugees there would be safeguarded, Israeli-backed Lebanese Christian Phalangists massacred over 800 civilians at the Sabra and Shatila refugee camps on 16 September. Not only was this a human tragedy, it was a profound embarrassment for the United States.

The MNF divided Beirut into three zones—the French had the northern part of the city, the Italians got the middle, and the U.S. the southern zone, which included the large Beirut International Airport (BIA) undergoing construction improvements. 32 Marine Amphibious Unit (MAU) received its orders to “establish a presence” in the U.S. MNF Zone, intermingled with civilians operating and upgrading the BIA. The idea was for the Marines to allow as much “normalcy” as possible in their peacekeeping role. The biggest problem facing the Marines was what the Israelis were doing in their assigned zone. While the operating guidance was to ignore them lest it appear that the U.S. was taking their side, from a practical standpoint this was difficult to execute. In October 1982, 32 MAU was relieved in place by 24 MAU.

The mission directive for 24 MAU stated: “establish [an] environment which will permit the Lebanese Armed Forces [LAF] to carry out its responsibilities in the Beirut area, and [to] be prepared to protect U.S. forces and conduct retrograde and withdrawal operations from the area.” The international MNF commanders agreed on patrolling into Christian East Beirut to create the impression among the Muslims that the force was indeed impartial and not allied to the Israeli and Christian Phalangist side. The MAU commander decided to do more “to permit the LAF to carry out its responsibilities” by putting his idle Marines to work training them.⁸⁰

24 MAU was relieved in place by 22 MAU. On 18 April, 1983, an explosive-laden pickup truck detonated within the American Embassy compound in Beirut, killing over 60 people. The Iranian-backed Hezbollah claimed credit for the attack. The MAU commander was shot at in his helicopter on 5 May. The next day, Druse artillery shot at

⁸⁰ Eric Hammel, *The Root: The Marines in Beirut, August 1983-February 1984* (New York: Harcourt Brace Jovanovich, Publishers, 1985) 52-59.

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the USS FAIRFAX COUNTY at sea performing logistical support, and two rounds hit the Marine beach. Nobody was hurt.⁸¹

On 17 May, President Ronald Reagan announced on television that, “The MNF went...to help the new government of Lebanon maintain order until it can organize its military and its police to assume control of its borders and its own internal security.” To many, this meant the MNF—and particularly the American component—was no longer impartial peacekeepers. They were on the side of the Christian Phalangist government. In this atmosphere, 24 MAU would relieve 22 MAU later that month. While there were disturbing signs of growing anti-Americanism in Muslim neighborhoods, it wasn’t until the Israelis pulled out of much of Beirut—particularly the Shouf Massif hills—on 28 August that the situation began to dramatically change. Local Muslim militia warlords, long suppressed by the Israeli Defense Force, had free rein to take on the hated LAF.⁸²

It was then that the Marines and LAF within the BIA and outlying checkpoints began to take sporadic fire over the next two days—small arms at first, but then mortar fire. The 22 MAU commander, Colonel Tim Geraghty, authorized illumination fired by Marine artillery over suspected Muslim Druze militia firing positions on the Shouf, but when indirect fire continued against BIA, he ordered high explosive rounds against them. On 4 September, Druze rockets, artillery, and mortar shells began raining into BIA and a company of Marines collocated with an LAF armored force were taken under heavy fire. No supporting arms were made available and the parent Marine battalion was restricted in providing any by the ROE and the need not to “take sides.”⁸³

The MAU Commander was put into a dilemma. His guidance to maintain a neutral posture, treating all parties equally, didn’t square with the Presidential television statement to support the Lebanese government and help the LAF. The restrictions on the force employed for self-defense only meant that the factions manipulated the US MNF contingent to make it appear weak, indecisive, and irrelevant.

On 9 September, an Lebanese general requested U.S. support through State Department channels for an LAF unit fighting in the Shouf town of Suq-al-Gharb. Colonel Geraghty initially refused to assist as he thought it would compromise whatever shred of neutrality the MNF was trying to maintain. The mission also did not conform to guidance given to him through Defense Department channels. He was also acutely aware of the 600 medium and heavy artillery tubes the Druze had amassed on the Shouf that could hit his Marines at BIA. In his 10 September situation report to U.S. SIXTH FLEET, Geraghty surmised:

"The worsening military and political situation in Lebanon this week has pulled the MAU deeper and deeper in to more frequent and direct military action.

⁸¹ Ibid, 76-81.

⁸² Ibid, 82-117.

⁸³ Ibid, 146-195.

Our increasing number of casualties has removed any semblance of neutrality and has put us into direct retaliation against those who have fired on us....I am concerned...that the end does not appear to be in sight and I perceive that the involvement in the Lebanese internal struggle has exceeded our original mandate.⁸⁴

The MAU Commander resisted a great deal of pressure from President Reagan's Special Ambassador and other senior leaders. Despite this, on 19 September the militias received Syrian-supplied tank support to take Suq-al-Gharb; Geraghty's LAF counterpart pleaded to him directly for help. Geraghty judged the request as fitting Defense Department guidance regarding such support. He authorized naval gunfire, breaking up the attack on the LAF at Suq-al-Gharb. Muslim militias shortly redoubled indirect fire and other attacks on U.S., Italian, and French MNF targets. The French retaliated by striking artillery behind Syrian lines on 24 September.⁸⁵

Negotiators publicized a cease-fire between the Lebanese Government and Syria on 26 September, a day after the USS NEW JERSEY came on station in the waters off Beirut. That same day, the Iranians ordered its representative in the Syrian capital to "take spectacular action against the American Marines," a communication intercepted by the U.S. National Security Agency but not told to the MAU for another month.⁸⁶ BIA was repaired and open for business again on the 30th. But during the latter week of 10 October, families were seen leaving their homes around BIA. Accuracy of sniper fire coming from these areas increased and new fighters appeared, assumed to be the Islamic Amal--Iranians trained in Syria. On 15 and 16 October, the Amal militia warriors opened fire in strength against the MAU and LAF at BIA, but requested a cease-fire after the Marines effectively responded.

On 18 October, the Defense Department announced that the Rules of Engagement would be reviewed by the Joint Chiefs of Staff; the White House simultaneously released a story that President Reagan was looking into loosening restrictions on Marine snipers. Over the next few days, the National Security Council reviewed a Secretary of Defense proposal to withdraw the U.S. MNF contingent from Beirut immediately. But the suggestion was dropped and never forwarded to the President for a decision. Colonel Geraghty, aware of hopes in many quarters regarding the national reconciliation talks at the end of October in Geneva, worried about militia "baiting" tactics. His 20 October SITREP to COMSIXTHFLT read:

"The recent series of direct attacks against USMNF Personnel, as well as the French and Italians, signal yet another change of tactics by the extremists in

⁸⁴ Colonel Timothy J. Geraghty, USMC (Ret.), *Peacekeepers At War: Beirut 1983—The Marine Commander Tells His Story* (Dulles, VA: Potomac Books, 2009), 68.

⁸⁵ Hammel, 211-224.

⁸⁶ Geraghty, 77.

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*this very unpredictable milieu...the tactics the extremists have resorted to...are very difficult to counter, and unless we remain ever mindful of our role, could easily provoke an inappropriate response which could seriously jeopardize our position and the cease fire as well....An inappropriate response to any provocative act will destroy our credibility and place us in even greater danger. I shall continue to respond as we have in the past...we will continue to maintain our vigilance.*⁸⁷

At 0622 on Sunday morning, 23 October, 1983, the Battalion Landing Team headquarters building within the BIA complex was destroyed by a suicide bomber driving a construction truck common to the local area with 6 tons of explosives. 241 were killed in what was later termed the largest non-nuclear explosion witnessed on earth.⁸⁸ As with the American Embassy bombing, Hezbollah was responsible. Senator Robert Byrd of West Virginia observed, "A nation cannot wear two hats, one being that of a peacekeeping force and the other being that of taking sides with one of the warring factions."⁸⁹

On 18 November, 22 MAU relieved 24 MAU, a week after Syrian SAM-5s shot at Navy reconnaissance aircraft flying over the Shouf. Hostilities continued between the MNF and the Muslim militias and Syrians, continuing what had been an undeclared war. President Reagan announced on 8 February, 1984 that the Marines would leave Beirut but remain aboard ships offshore. On 17 February, 1984, the Lebanese President revoked the peace accord with Israel signed in May; ten days later the last MAU Marines at BIA back-loaded aboard ship. The last MAU Marines at the new U.S. Embassy compound departed in August; a suicide truck bomb attack against the diplomatic facility on 20 September, 1984 killed eight.⁹⁰

⁸⁷ Ibid, 88.

⁸⁸ Hammel, 303.

⁸⁹ Michael Petit, *Peacekeepers At War: A Marine's Account of the Beirut Catastrophe* (Boston: Faber and Faber, Publishers, 1986), 201.

⁹⁰ Hammel, 421-426.

**REFRAMING:
The South East Asia Lake, Ocean, River, Delta Strategy, 1968-69**

When the U.S. committed to the Vietnam War in force, the U.S. Navy was soon employed in a coastal interdiction campaign (Task Force 115, OPERATION MARKET TIME) to prevent the movement of communist supplies into and around the Republic of Vietnam (RVN—South Vietnam). Before long, the Navy cast its eyes into the Mekong Delta where the Viet Cong had established a stronghold of support. According to some, 75% of the population there was under the influence of the communists. A more tangible indicator of Viet Cong success, the diversion of the rice harvest, showed that in 1965 through 1966, the output of rice from the Delta had fallen by about 25%. 30,000 regular troops and 50,000 guerrillas were estimated to be operating in the Delta, and the three-division RVN army force along with the Regional Forces and Popular Forces were unable to stop them.⁹¹

On 18 December, 1965, the Navy created Task Force 116 to conduct OPERATION GAME WARDEN to patrol the inland Delta waterways and deny the communists waterborne supply routes. River Patrol Boats (PBRs) had to be procured and crews trained; it wasn't until 8 May, 1966, that the first patrols were mounted.⁹² At first the enemy eluded the few boats that were used. But as the Task Force grew and patrols became more frequent, the Viet Cong employed close-range ambushes instead. PBR crews learned quickly that the best way to beat these tactics were to pre-empt them by mounting their own ambushes first. A "Huey" helicopter squadron was formed in April 1967 but then had too few aircraft to respond to all requests for assistance across the breadth of the Delta by 1968.

Sea, Air, Land (SEAL) naval Special Forces were assigned to reinforce GAME WARDEN in improving intelligence on communist activities beginning in February 1966. But this was not going to be enough, so the U.S.—despite the reluctance of the Saigon government—created the Mobile Riverine Force (MRF—Task Force 117), bringing in a brigade of the U.S. 9th Infantry Division in 1967. This unit would operate from the water in armored landing craft and have specialized fire support afloat, to include assigned artillery battalions.⁹³ And while RVN forces were involved in MRF operations, the U.S. was clearly in the lead conducting riverine "search and destroy" operations.

When it came, the 1968 Tet offensive was defeated in the Delta as it was all over South Vietnam. Despite favorable metrics on communist infiltration and supply detections and successful boardings, the Viet Cong were still in control of major portions of the Delta and still could mount waterborne transfers of troops and equipment. To Navy CAPT Robert S. Salzer, commander of the Riverine Assault Force, methods

⁹¹ John Forbes and Robert Williams, *Riverine Force: The Illustrated History of The Vietnam War, Volume 8* (New York: Bantam Books), 51.

⁹² *Ibid*, 66.

⁹³ *Ibid*, 83.

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employed so far just weren't working and could never work. A new understanding of the problem and a new approach was necessary. He summed it up this way:

"In an oriental country against an irregular force, what our tactic had to be was to force the enemy to come to us, because he had the knowledge of the terrain, the knowledge of the people. He had many advantages and we were relatively clumsy at ferreting him out. How then, I kept postulating, do you make the enemy come to you? The answer is you must, when he is an enemy depending on an external source of supplies, choke off the supplies. And you must have many small units ... engage in that activity; also, you must keep rapid reaction forces poised and ready for the enemy main force comes in and tries to tangle with the little guys.

Where were his supplies coming from? At one time it was claimed they were coming from the sea, but that turned out wrong. Others were claiming, and intelligence people said they had hard evidence, that they were coming into Cambodia and down the trail and then down through the Ca Mau Peninsula around certain canal networks, and our intelligence people said they had them pretty well identified. What I wanted to do was set up multiple, integrated interdiction barriers with small river units, with troops associated with them, setting up ambush patrols along these areas. The Viet Cong were pretty well canalized for a variety of reasons as to their routes and I figured we might have a 20 percent probability at any one barrier. Therefore, we had to set a pack of barriers. We needed multiple layers of interdiction patrol, such as in "blue water" ASW [Anti-Submarine Warfare].⁹⁴

The new three-star naval commander in Vietnam, VADM Elmo Zumwalt, was—at 47—the youngest commander of his rank in the Navy. And he was eager for innovative ideas and listened to Salzer. Within weeks of his arrival in-country, Zumwalt pitched Salzer's ideas up the chain of command in the autumn of 1968. The new strategy was far different than what had been done before. SEALORDS had three goals: (1) choke off communist infiltration and supply routes into the Delta; (2) exercise continuous control over the cross-Delta waterways and canals; and (3) get into the communist stronghold of the Ca Mau peninsula. The means would be a joint and coalition effort. The ways would be using water and air mobility to establish control over the land area of the Mekong Delta. Unlike anywhere else in Vietnam, a front line would be

⁹⁴ CDR R. L. Schreadly, USN (Ret.), *From the Rivers to the Sea* (Annapolis, MD: Naval Institute Press, 1992), 149.

established using layered barriers. Beyond that line, Allied forces would raid into enemy-held territory and neutralize any attempt to break through it to the friendly side.⁹⁵

Salzer's concept of the ways and means to meet these new ends was this:

"We had night scopes, we could detect activity; we had now just received in the country the sensors that had been bought for the McNamara Line and were told to make whatever use we could of them; they were good for these purposes. We could set up these patrols; we could have armored boats and PBRs and react quickly with a platoon or more to any ambush that was under attack. And in addition, if we could only get some helicopter gunships in there, we could take a toll. Not one of these was going to be an impenetrable barrier just as in an ASW problem. We had to set up successive layers....you know there is very little body count associated with it; it's not the active kind of thing...--"search and destroy." Yet when the enemy gets desperate he will come to you. He does have to show himself and then you get the body count. But the other weeks—the two week statistics might be pretty abysmal and you might never ever see him—you don't really care about killing him, but you don't want him to get his supplies."⁹⁶

As Zumwalt explained it to his staff and commanders, there wasn't any doctrine on riverine operations, so improvisation would have to be the order of the day. His idea was to "keep changing the game plan" because "you can get away with almost anything once or even twice, but you must change strategies frequently in order to keep the enemy from exploiting you."⁹⁷

Instead of the three large task forces (TF 115, 116, and 117) executing independent operations, assets from each would be mixed together in integrated evolutions conducted by the new Task Force 194 in pursuit of SEALORDS objectives when and where necessary. Despite being passed over for promotion, Salzer was put in charge by Zumwalt to plan and orchestrate these integrated operations as "First Sea Lord" of TF 194 on top of his normal TF 117 duties. New OV-1 "Bronco" aircraft would be added to assist the hard-pressed Hueys and greater involvement of the South Vietnamese River Assault Group, Army, and RVN Marine units was necessary.

The strategy appears to have worked; all evidence pointed to control of the Delta passing from the communists to Saigon. The critical factor was the layered barrier line;

⁹⁵ Forbes and Williams, 121.

⁹⁶ Schreadly, 150.

⁹⁷ Thomas J. Cutler, *Brown Water, Black Berets* (Annapolis, MD: Naval Institute Press, 1988), 286.

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behind it, prosperity was growing.⁹⁸ As Salzer had predicted, the communists-- faced with losing supplies and infiltration routes--indeed "came to us." More communist personnel, documents, and equipment were captured. The number of enemy-initiated firefights significantly increased. Casualties among the SEALORDS forces also rose dramatically, but so did the enemy's; estimates averaged about 30 communists lost for every friendly, occasionally reaching over a 100:1 ratio.⁹⁹ Salzer explained the reason for the success of SEALORDS this way:

"...the VC were set on avoiding contact; and that was a fairly easy task against "search and destroy" tactics with multi-battalion units complete with artillery support plowing through the paddy. It appeared to us that the best chance of bringing the enemy into the open was to imperil his primary objective of resupply and reinforcement by multiple interdiction barriers athwart his lines of communications to the Delta. No single interdiction barrier had much chance of imposing significant attrition in view of the availability of alternate rivers and streams. But a series of such barriers maintained by combined river, ground, and air forces might have brought the VC to the point where they had to use sizable units to break through. Then with ready-reaction (air-mobile battalions) the enemy could be engaged on our terms—a "bait and destroy" tactic."¹⁰⁰

Salzer was promoted to flag rank and eventually served as the senior naval commander in Vietnam in 1971, retiring as a VADM from his last tour as Commander, Amphibious Forces Pacific. Zumwalt would be selected from his Vietnam tour to be the Chief of Naval Operations, even though he had never held a numbered fleet command, until then considered to be a prerequisite to hold the office.

⁹⁸ Forbes and Williams, 153-154.

⁹⁹ Cutler, 334.

¹⁰⁰ Ibid, 336.

ANNEX B

Glossary

assessment — A continuous process that measures the overall effectiveness of employing joint force capabilities during military operations; determination of the progress toward accomplishing a task, creating an effect, or achieving an objective. (JP 1-02)

condition — 1. A reflection of an aspect of observed and desired systems. (Primer)
2. Something essential to the appearance or occurrence of something else. (Webster's)
3. Those variables of an operational environment or situation in which a unit, system, or individual is expected to operate and may affect performance. (JP 1-02)

design — 1. A methodology for applying critical and creative thinking to understand, visualize, and describe complex, ill-structured problems and develop approaches to solve them; a way to make sense of a complex environment, to identify the problems in that environment, and to develop an approach that addresses those problems. (Primer)
2. To conceive and plan out in the mind; a mental project or scheme in which means to an end are laid down; a preliminary sketch or outline showing the main features to be executed. (Webster's)

design concept — A product with text and graphics that describes the operational approach. (Primer)

desired system — The state of the system as we believe it should be at the end of operations in order to support US interests as expressed in strategic directives and harmonized with the learning achieved in the development of the observed system.

discourse — 1. Cordial disagreement resulting in a synthesis of ideas or perspectives; an iterative exchange of multiple perspectives on a problem. (Primer)
2. Verbal interchange of ideas. (Webster's)

framing — Selecting, organizing, interpreting, and making sense of a complex reality to provide guideposts for synthesis, understanding, and acting. (Primer)

observed system — The current state of the system as we see and understand it. (Primer)

operational approach — A description of the broad actions that will create the conditions that define the *desired system*. (Primer)

operational art — The application of creative imagination by commanders and staffs—supported by their skill, knowledge, and experience—to design strategies, campaigns, and major operations and organize and employ military forces. Operational art integrates ends, ways, and means across the levels of war. (JP 1-02)

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operational design — The conception and construction of the framework that underpins a campaign or major operation plan and its subsequent execution. (JP 1-02)

potential — 1. The inherent ability or capacity for the growth or development of a specific interaction or relationship. (Primer) 2. Something that can develop or become actual. (Webster's)

problem frame — A refinement of the environmental frame that defines, in text and graphics, the areas for action that will transform existing conditions toward desired conditions that should comprise the *desired system*. (Primer)

reframing — A process of revisiting earlier design hypotheses, conclusions, and decisions that underpin the current operational approach. (Primer)

system — A functionally, physically, and/or behaviorally related group of regularly interacting or interdependent elements; that group of elements forming a unified whole. (JP 1-02)

system potentials — The limits to which a system can be moved by infusion of energy. (Primer)

system relationships — the linkages that connect the interaction of the actors who make up the system. (Primer)

system tendencies — Predictions about how the system will behave if left alone. (Primer)

systems thinking — The process of understanding how things influence one another within a whole. (Primer)

tendency — 1. The inclination to make decisions or behave in a certain manner. (Primer) 2. Proneness toward a particular kind of thought or action. (Webster's)

tension — The resistance or friction among and between actors. (Primer)

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The enemy always gets a vote in the outcome, so commanders are well advised to heed the often-quoted warning that 'no battle plan survives contact with the enemy.' This challenge can be greater in counterinsurgency, counterterrorism, and similar operations than it is in larger-scale combat, since the adversary has more flexibility to determine when, where, and whether or not to fight."

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