

Useless Intelligence: Risk Reduction Redundancy in Planning

A Monograph

by

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Abstract

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This study asks how intelligence and operational capability interact in redundant ways during planning to edit risk in commanders' decisions. This study constructs a new risk management framework in which commanders edit risk through two primary means: (1) operational capabilities to influence the operating environment and (2) uncertainty reduction through intelligence about the operating environment. The constructed risk framework describes these means and visually describes how they interact, when they are additive, and when they are redundant. This study reconceptualizes the entire planning process as managing risk instead of viewing risk management as a discrete and separable process. Using a case study of Operation Neptune's Spear, this study establishes the plausibility of the hypothesized risk framework and identifies when intelligence is redundant. This study makes recommendations to create a shared understanding of risk in planning while facilitating efficient allocation of risk editing resources by identifying areas where risk editing efforts are most likely to provide value to the commander's risk decision.

Contents

Abstract	iii
Contents.....	iv
Acknowledgements	v
Abbreviations	vi
Figures.....	vii
Tables	viii
Introduction	1
Literature Review	6
Constructed Risk Framework.....	15
Methodology	27
Case Study	29
Findings and Analysis	41
Conclusion.....	47
Appendix	49
Bibliography	57

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Abbreviations

AC1	Abbottabad Compound 1
ATP	Army Techniques Publication
CIA	Central Intelligence Agency
CJCSM	Chairman of the Joint Chiefs of Staff Manual
COA	Course of Action
JP	Joint Publication
NSA	National Security Agency
QRF	Quick Reaction Force
SAM	Surface-to-Air Missile
SOF	Special Operations Forces
UAV	Unmanned Aerial Vehicle

Figures

Figure 1. Notional Factors of Operational Design	7
Figure 2. The Joint Risk Framework.....	8
Figure 3. Generic Risk Contour Graph.....	9
Figure 4. Recognition-Primed Decision Model.....	11
Figure 5. The Axiomatic Risk Spectrum.....	16
Figure 6. Conceptual Plotting of Possible Risk.....	18
Figure 7. Conceptual Plotting of Risk Reduction Potential.....	19
Figure 8. Risk Editing Areas	21
Figure 9. Risk Editing Possibilities	22
Figure 10. Abbottabad Compound 1	30
Figure 11. Map of Operation Neptune's Spear.....	35

Tables

Table 1. Risk Editing Possibilities and Hypothesized Outcomes.....	23
Table 2. COA Options.....	32
Table 3. Risks Identified in Planning	36
Table 4. Risk Editing Means Applied in Planning	37
Table 5. Risks Identified in Planning (with footnotes).....	49
Table 6. Risk Editing Means Applied in Planning (with footnotes).....	51

Introduction

Risk is an enduring feature of war. Competing, incomplete, and contradictory views of risk and how commanders make risk decisions complicate understanding and handicap discussions about risk in military operations. This study describes how risk management efforts interact to edit risk in planning and when these means are redundant.

Current understandings of risk fail to describe the two primary means for editing risk: (1) operational capabilities to influence the operating environment and (2) uncertainty reduction through intelligence about the operating environment. Current understandings entangle these means and only partially explain their contributions to risk management, implying that more of either will always reduce risk, if only marginally. This is not so. These means are interactive, with one's value dependent upon the other.¹ Crucially, this interactivity sometimes makes the contributions of one means (often intelligence) redundant.

Existing risk paradigms fail to account for this interaction during planning, focusing instead on initial and residual risk. This shortfall leads to inefficient risk management and poorly communicated understandings of acceptable and residual risk from, to, and between commanders.

This study constructs a risk management framework to describe the two primary risk management means and to visualize how they interact, when they are additive, and when they are redundant. Recognizing where redundancy occurs will contribute to a more accurate understanding of how planning facilitates commanders' risk decisions. Importantly, this study reconceptualizes the entire planning process as managing risk instead of viewing risk management as a discrete and separable process. This reconceptualization transforms risk decisions from ambiguous, entangled, and disintegrated decisions that exist solely within the

¹ Christopher Denzel, "On Intelligence, Part II: Understanding Intelligence in Risk Mitigation," *Marine Corps Gazette* 104, no. 10 (October 2020), WE1-WE4. <https://mca-marines.org/wp-content/uploads/On-Intelligence-Pt-II.pdf>.

commander's purview into tangible, actionable, and integrated problems that planners can deliberately affect.

This study uses the following definitions.

Acceptable Level of Risk: the level at which “certain risks remain low enough that additional risk reduction efforts are not required.”² Above this level, “risk is too high to pursue [action] without additional risk mitigation efforts.”³

Operational Capabilities: the resources a commander directs and is supported by to achieve the military objective.⁴ This term includes the force design pillars of doctrine, organization, training, materiel, leadership and education, personnel, and facilities directly involved in or supporting the functioning of these forces.

Redundancy: relevant risk management efforts that do not contribute to achieving a commander's acceptable level of risk.⁵

Risk Editing: the process of adding, removing, or altering the risk management means to achieve the acceptable level of risk.⁶

Risk Management: the “process to identify, assess, and control risks and make decisions that balance risk cost with mission benefits.”⁷

Uncertainty Reduction: the estimate of relevant factors impacting mission execution that are not within the power of commanders to affect but that are knowable, including the adversary or the effects of weather and terrain.⁸ While intelligence has many functions and cannot be

² US Department of Defense, Joint Staff, Chairman of the Joint Chiefs of Staff Manual (CJCSM) 3105.01, *Joint Risk Analysis* (Washington, DC: Government Publishing Office, 2019), B-5.

³ US Department of Defense, Joint Staff, CJCSM 3105.01, *Joint Risk Analysis*, B-5.

⁴ This definition is derived from the constructed risk framework developed in section 3.

⁵ This definition is derived from the constructed risk framework developed in section 3.

⁶ This definition is derived from the constructed risk framework developed in section 3.

⁷ US Department of Defense, Joint Staff, *DOD Dictionary of Military and Associated Terms*, (Washington, DC: Government Publishing Office, 2021), 187.

⁸ This definition is derived from the constructed risk framework developed in section 3.

simplified to mere uncertainty reduction, that is its primary purpose generally and in the context of the constructed risk framework. Thus, for readability, this study will use “intelligence” and “uncertainty reduction” interchangeably.

This study uses operational art as its theoretical framework. Operational art seeks to balance ends, ways, and means in pursuit of desired outcomes—risk in operational art results from an imbalance of these factors. In contrast, US doctrine treats risk management as a discrete process that is adjunct to, not inherent within, planning to achieve objectives. This study reconceptualizes the entire planning process as a risk management endeavor, theoretically and practically extending the concept of risk management.

This study posits that risk editing means are interdependent and can overlap in ways that make one means redundant. This thesis is diagnostic, allowing commanders to visualize risk editing efforts and evaluate their potential effectiveness. The overarching research question asks: how do intelligence and operational capability interact in redundant ways during planning to edit risk in commanders’ decisions?

This study is limited by the nature of the case and its sources. Operation Neptune’s Spear, the so-called bin Laden raid, has tactical and strategic features but without apparent operational level characteristics. Furthermore, President Obama conducted the mission under Central Intelligence Agency’s (CIA) covert action authorities with Special Operations Forces (SOF), creating peculiar features that may not apply to operations performed under military authorities.⁹

⁹ *Covert action* refers to “an activity or activities of the United States Government to influence political, economic, or military conditions abroad, where it is intended that the role of the United States Government will not be apparent or acknowledged publicly.” Intelligence Authorization Act, Fiscal Year 1991, Public Law 102-88, *US Statutes at Large* 105 (1991): 443, codified at *US Code* 50 (2021), § 3093. CIA leads covert actions, although other elements of the Executive Branch may be involved in a supporting role or may, at the direction of the President, lead the covert action. George W. Bush, Executive Order 13470 “Further Amendments to Executive Order 12333, United States Intelligence Activities”, *Federal Register* 73, no. 150 (August 4, 2008): 45333, <https://www.federalregister.gov/documents/2008/08/04/E8-17940/further-amendments-to-executive-order-12333-united-states-intelligence-activities>. Covert action is similar to the DoD term *covert operation*, an “action or activity that is planned and executed to conceal the identity of, or permit plausible deniability by, the sponsor,” but covert actions have legal implications that covert operations do not necessarily have. US Department of Defense, Joint Staff, *DOD Dictionary of*

This study mitigates these limitations by focusing on risk editing applicable to operations conducted under military authorities.

The mission remains classified, limiting sources to publicly available documents. This limitation restricts data collection to selectively released official and semi-official accounts potentially containing partially redacted, politically biased, or deliberately false information. Data collection from unofficial sources relies on details of unknown provenance. Finally, data collection is limited to what decision-makers relate about their risk decisions after the fact rather than contemporaneous risk appraisals. This study mitigates these limitations by using data corroborated by multiple sources and evaluating the plausibility of both the source and the information itself. Analyzing plausible elements of the case allows generalizable validity, even if the truth of each element of the case cannot be determined.

This study has three delimitations. First, this study addresses only risk editing in planning, focusing on perceived risk and excluding true or realized risk in execution. This delimitation also omits risk bias variables while preserving applicability within theories that address such factors. Second, this study limits itself to a single case, relying on intra-case comparisons to establish validity. Finally, this study centers on military operations—generalizability to other domains is outside this study’s scope.

This study assumes the applicability and generalizability of the case to traditional military operations, the general reliability of the sources, and the ability to understand interactive risk editing with incomplete data. The nature of the mission as a covert action requires the assumption that conclusions apply to missions conducted under military authorities. The lack of operational characteristics in the mission requires an assumption that findings apply in operational-level decisions. The study assumes primary accounts represent risk decisions faithfully, and secondary

Military and Associated Terms, 53; Joseph R. Berger III, “Covert Action: Title 10, Title 50, and the Chain of Command,” *Joint Force Quarterly*, no. 67 (4th Quarter 2012).

or unofficial sources represent details faithfully if they are consistent with primary source evidence. Finally, the available sources probably do not convey every risk decision made during planning, requiring an assumption that interaction of risk mitigation means can be determined from discrete risk decisions and does not require a comprehensive analysis of the mission.

This study has seven sections. Section 2 reviews existing paradigms for risk management. Section 3 presents the theoretical framework used for case analysis. Section 4 outlines the research methodology. Section 5 is the case study. Section 6 presents findings and analyzes the case. Section 7 concludes the study by validating the hypothesis, identifying recommendations, and noting areas for further research.

Literature Review

This section identifies gaps in understanding of risk management through a three-part literature review. The theoretical review addresses doctrinal views on risk management and alternative risk models. The conceptual review addresses ideas on how commanders edit risk in planning. Finally, the empirical review addresses other research on military risk.

US joint doctrine has two conceptions of risk: risk from balancing operational art and design elements and risk controlled through risk management. The first concept is all-encompassing but referenced only tangentially in doctrine. Risk management directives and publications use a second, far narrower conception of risk in an attempt to provide practical tools for integrating risk into planning.

Joint Publication (JP) 3-0 describes operational art as the approach commanders use to balance ends, ways, and means to achieve “objectives and desired military end state[s]” in support of national objectives.¹⁰ “Operational art links tactical action to strategic purpose” and “governs the deployment of forces and the arrangement of operations.”¹¹ Risk here is the “chance of failure or unacceptable results” in pursuit of specified ends.¹² Within operational art, commanders and staffs use the “analytic framework” of operational design to plan operations and work through “ends-ways-means-risk questions.”¹³ During operational design, commanders balance the nature of the mission with time, space, and forces available, considering various factors (figure 1).¹⁴

¹⁰ US Department of Defense, Joint Staff, JP 3-0, *Joint Operations*, Change 1 (Washington, DC: Government Publishing Office, 2018), 2-3, 2-4.

¹¹ US Department of Defense, Joint Staff, JP 3-0, *Joint Operations*, Change 1, 1-13.

¹² US Department of Defense, Joint Staff, JP 3-0, *Joint Operations*, Change 1, 2-4.

¹³ US Department of Defense, Joint Staff, JP 5-0, *Joint Planning* (Washington, DC: Government Publishing Office, 2020), 4-1; US Department of Defense, Joint Staff, JP 3-0, *Joint Operations*, Change 1, 2-4.

¹⁴ US Department of Defense, Joint Staff, JP 5-0, *Joint Planning*, 4-19.

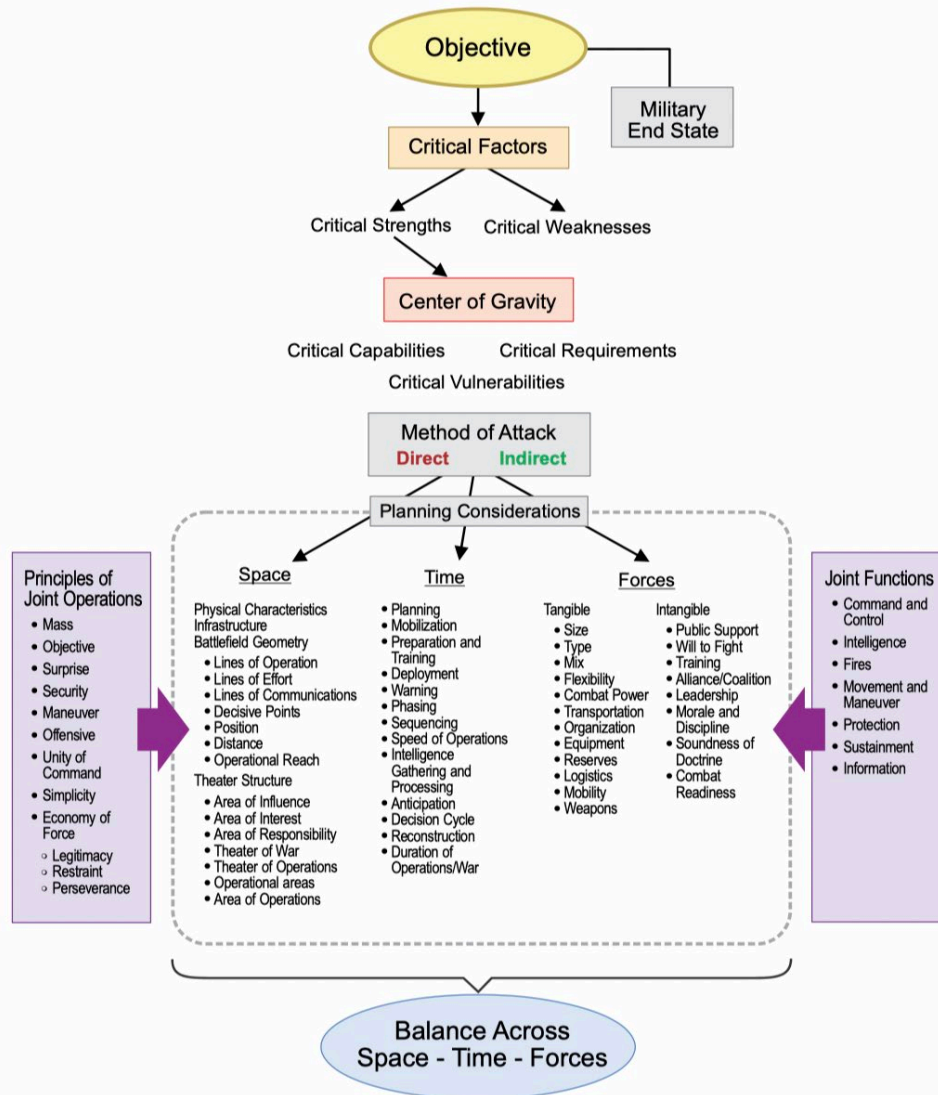


Figure 1. Notional Factors of Operational Design. US Department of Defense, Joint Staff, JP 5-0, *Joint Planning*, 4-20.

Because commanders will never have an advantage in every factor, they must balance these factors to “ensure the plan has an acceptable level of risk across all elements of design.”¹⁵ While this suggests risk is fundamentally related to planning itself, doctrine equivocates and adopts a far narrower definition when providing tools to consider and mitigate risk. Doctrine defines risk only parenthetically, using this narrower definition: “the probability and severity of

¹⁵ US Department of Defense, Joint Staff, JP 5-0, *Joint Planning*, 4-45.

loss linked to hazards.”¹⁶ Hazards, in turn, are “condition[s] with the potential to cause injury, illness, or death of personnel; damage to or loss of equipment or property; or mission degradation.”¹⁷ Examples for hazard controls suggest that they are predominantly accidents.¹⁸ Where doctrine considers the enemy, examples are limited to unexpected or particularly harmful actions and do not include ‘routine’ forms of enemy opposition.¹⁹ These examples effectively narrow the definition of hazards to accidents, acts of god, or especially dangerous enemy action against which planners must especially defend. This point is worth restating: doctrinally speaking, ‘routine’ injury, death, or destruction wrought by the enemy does not constitute a risk.

Commanders develop hazard controls through a two-stage risk management process (see Figure 2figure 2). The first stage is understanding hazards through an assessment or appraisal, and the second stage is managing risk through the application of controls.

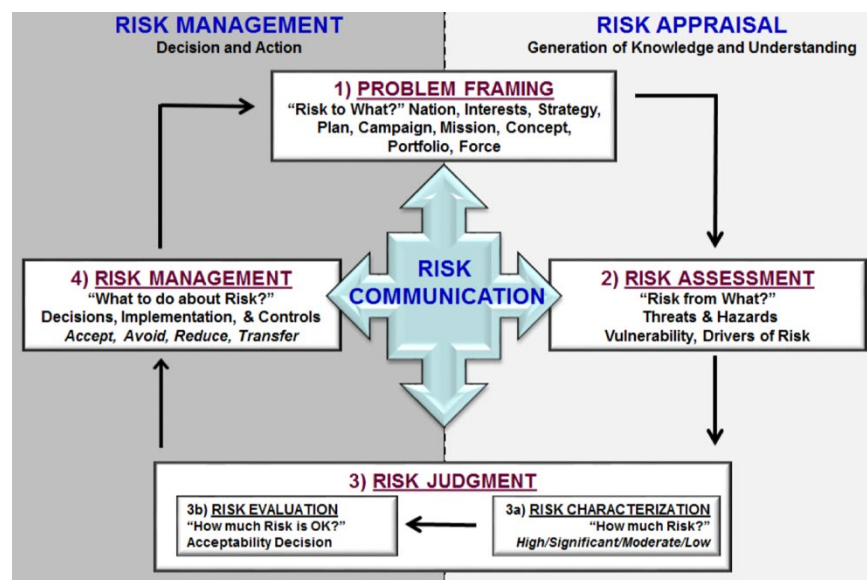


Figure 2. The Joint Risk Framework. US Department of Defense, Joint Staff, CJCSM 3105.01, *Joint Risk Analysis*, B-2.

¹⁶ US Department of Defense, Joint Staff, JP 5-0, *Joint Planning*, A-2.

¹⁷ US Department of Defense, Joint Staff, *DOD Dictionary of Military and Associated Terms*, 95, 187.

¹⁸ US Department of the Army, Army Techniques Publication (ATP) 5-19, *Risk Management* (Washington, DC: Government Publishing Office, 2014), 1-11.

¹⁹ US Department of the Army, ATP 5-19, *Risk Management*, 4-12, A-7.

Risk assessment occurs during the mission analysis step of the Joint Planning Process, evaluating the hazards along two dimensions: probability and consequence (figure 3). The result is identified risk, which commanders mitigate or accept through the second stage: risk management. Managing risk occurs during plan development through reducing likelihood or consequence. The examples provided are all additional operational capabilities or risk avoidance.²⁰ This narrowed definition suggests risk management is adjunct to (not inherent within) operational design.²¹

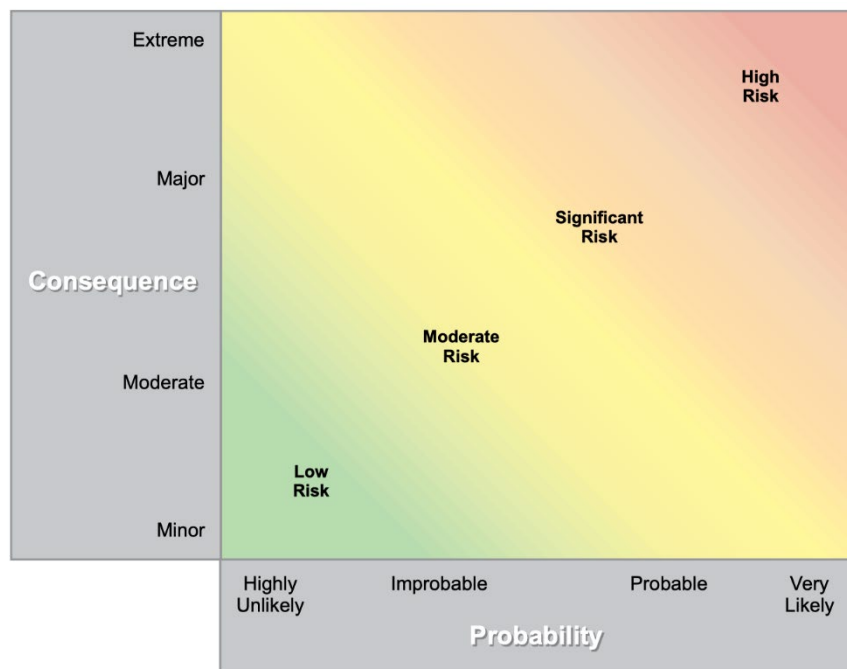


Figure 3. Generic Risk Contour Graph. US Department of Defense, Joint Staff, JP 5-0, *Joint Planning*, 3-25.

In sum, the Joint Risk Framework, which the Army modifies and describes as a risk management process, has a second stage called risk management, which contains a sub-step also

²⁰ US Department of Defense, Joint Staff, JP 5-0, *Joint Planning*, 1-21 – 1-22.

²¹ This adjunct nature may explain why many practitioners fail to take formal risk management efforts seriously or feel that such formal efforts are redundant. If planning is risk management, as this study proposes, then a secondary risk management process appended to planning efforts is redundant.

termed risk management.²² This confusing terminology suggests an approach that is either incoherent or far more holistic than portrayed.

Alternative models for risk and uncertainty in decision-making exist. However, these theories address risk bias and decision-making processes, not any risk editing process. Expected Utility Theory and Prospect Theory view “decision making under risk ... as a choice between prospects or gambles.”²³ Expected Utility Theory predicts a purely mathematical weighting of these probabilities, with decision-makers literally doing the math. Prospect Theory predicts that a decision-maker’s risk bias depends on how they frame the “prospect” or gamble; gains lead to risk-aversion and losses lead to risk-seeking.²⁴ In both theories, risk decisions are single, non-iterative choices in which uncertainty is a given, unalterable probability in the form of “Choose between A or B.”

Naturalistic Decision Making posits that “proficient decision makers ... use their experience” when facing familiar situations to quickly identify feasible options and narrow the information considered to that critical to expected decisions.²⁵ Decision-makers use a satisficing, recognition-primed decision model to “generate a workable first option” and refine as necessary (figure 4). Risks, uncertainty, and risk editing exist in the steps “Will it work?” and “Modify,” but the theory makes no claims about how this risk editing occurs.²⁶ This recognition-primed model contrasts with deliberate analytic strategies used in unfamiliar situations or by novice decision-makers.

²² The Army describes a nominally different cycle as “A cyclical, continuous process for managing risk.” US Department of the Army, ATP 5-19, *Risk Management*, 1-3.

²³ Daniel Kahneman and Amos Tversky, “Prospect Theory: An Analysis of Decision under Risk,” *Econometrica* 47, no. 2 (Mar., 1979), 263.

²⁴ Kahneman and Tversky, 265.

²⁵ Gary A. Klein, “Strategies of Decision Making,” *Military Review* 69, no. 5 (May 1989), 58.

²⁶ Klein, 59.

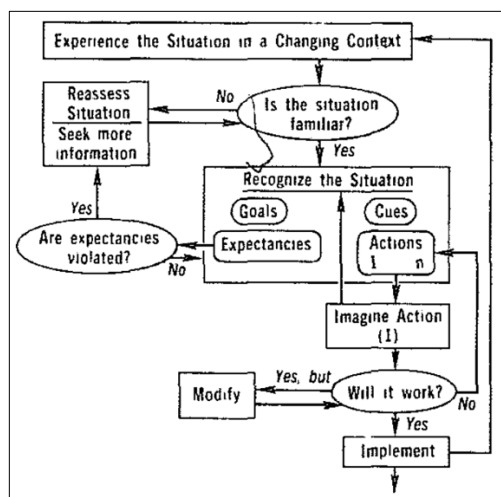


Figure 4. Recognition-Primed Decision Model. Gary A. Klein, “Strategies of Decision Making,” 58.

Expected Utility Theory and Prospect Theory explain how individuals make risk decisions but ignore situations where individuals edit risk. Naturalistic Decision Making describes choices among broad risk options but makes no claims about the risk editing process. Therefore, these theories provide little insight into the research question.

The descriptions of operational art and design suggest a holistic view of risk. If risk in operational art stems from imbalances in ends, ways, and means, then operational art is used to manage risk, not some distinct risk process. The same is true for operational design’s balancing of overarching, time, space, and force factors. Additionally, commanders compare courses of action (COA) by risk level (the “acceptability” validity criteria), implying that different plans have different risks and risk levels, suggesting that planning modifies risk.²⁷ This study adopts this holistic view of risk; however, doctrine never states that planning itself is risk management.

Risk management doctrine’s narrow definition of risk constrains how commanders and planners think about and conduct risk management. Definitions of risk as the probability and consequence of loss caused by hazards ignore the idea that commanders measure risk in relation to achieving desired objectives. Doctrine emphasizes this narrower view by the examples of

²⁷ US Department of Defense, Joint Staff, JP 5-0, *Joint Planning*, 3-32, 3-41.

hazards and controls. Doctrine does not explain how commanders control risk but states they request additional forces and capabilities if risk remains too high, implying commanders manage risk by applying operational capabilities alone.²⁸ Because doctrine implies hazards are accidents or especially dangerous enemy actions, risk-controlling operational capabilities remain adjuncts to the plan instead of the entirety of forces employed. This view suggests anything that does not undergo the risk management process is not a risk. In more concrete terms: a tank unit would not consider enemy tanks a risk, despite the enemy's ability to cause loss and prevent the achievement of objectives. But enemy chemical munitions in a tank battle would be a hazard warranting risk controls. There is no reason for this distinction nor guidance for when 'routine' loss threatened by the enemy becomes a hazard worth controlling through risk management.

Regarding uncertainty, doctrine offers no insight on how intelligence interacts with operational capabilities in risk decisions. The value of intelligence is a function of whether it is: "anticipatory, timely, accurate, usable, complete, relevant, objective, and available."²⁹ Doctrine also asserts "the value of information or intelligence is tied to ... the amount of uncertainty it clarifies or resolves," implying intelligence always provides value to commanders.³⁰ This study aims to show when this is untrue and why.

Critiques of doctrinal views of risk are extensive and divergent. These sources exhibit two themes relevant to this study. First, each author concludes that risk doctrine is inadequate. Second, each author looks at different facets of risk, attempting to solve fundamentally different problems and offering conclusions unhelpful to the other authors. These divergent views suggest that risk is more expansive than the narrower definition of risk management doctrine. Stated another way, if risk is the result on the 'right side of the equation' in operational art, then

²⁸ US Department of Defense, Joint Staff, JP 5-0, *Joint Planning*, 3-65.

²⁹ US Department of Defense, Joint Staff, JP 2-0, *Joint Intelligence* (Washington, DC: Government Printing Office, 2013), 2-7.

³⁰ US Department of Defense, Joint Staff, JP 2-0, *Joint Intelligence*, 1-22.

everything on the ‘left-hand side,’ including ends, ways, and means, is subject to inquiry through the lens of risk. While this literature links uncertainty to risk, only two authors (discussed below) explore its role in commanders’ risk decisions. Accordingly, this literature review will not discuss these sources further, but the bibliography contains a complete list of reviewed sources.

The two authors that explore the role of uncertainty in risk decisions are Colonel Jürgen Prandtner and Lieutenant Colonel Robert Croft. Prandtner considers US national strategy’s emphasis on uncertainty in future conflicts. Reviewing joint doctrine for guidance on coping with uncertainty, Prandtner finds little of value, calling uncertainty the “forgotten factor” in joint planning. He recommends doctrine adopt a set of tools to measure, reduce, or compensate for uncertainty such as modeling, heuristics, and decision trees, but does not explain the role of uncertainty in risk decisions.³¹

Croft stands out in two ways. First, he mathematically demonstrates the error of risk management doctrine, pointing out the use of ordinal instead of ratio data. Ratio data uses the same scale, facilitating addition or multiplication. For example, the expected value of a 10 percent chance of losing \$10,000 equals an anticipated loss of \$1,000.³² The scale here is base-ten, allowing multiplication without distorting the underlying reality. In ordinal data, “the order (hence, ordinal) of categories is clear,” allowing for categorization.³³ However, the scale is not a literal distance between categories, meaning that addition or multiplication is meaningless or deceptive. “Four nights in a one-star hotel cannot be stated, mathematically or qualitatively, as the same as one night in a four-star hotel.”³⁴ The doctrinal measures of probability and consequence are ordinal, with risk calculated by multiplying the two, thus distorting underlying

³¹ Jürgen Prandtner, “Uncertainty: The Forgotten Factor in Joint Planning?” (master’s thesis, School of Advanced Military Studies, 2019), 23-24.

³² Robert E. Croft, “Understanding Uncertainty: Incorporating the Unknown Into Military Estimates” (strategy research project, US Army War College, 2018), 17.

³³ Croft, 17.

³⁴ Croft, 18.

reality. Doctrine compounds this problem by providing no mechanism for accurately or consistently categorizing hazards in the ‘correct’ categories, making even the underlying ordinal values questionable.

Second, Croft concludes that doctrine’s risk management definitions and processes constitute an “accident prevention framework” better suited to “minimizing safety hazards in environments where success is the default state,” appropriate for a construction site, not warfare.³⁵ He recommends portraying risk “as a gap in ends-ways-means alignment.”³⁶ However, Croft believes uncertainty defies reduction, recommending planners embrace uncertainty, estimating “all real possibilities” to activate “experience and intuition.”³⁷

This review uncovered no literature addressing the research question. Operational art and design suggest an expansive view of risk, but risk management doctrine defines risk narrowly, providing a literal equation for risk that is mathematically unsound. The voluminous literature on risk focuses on dimensions of risk unrelated to the research question. Doctrine offers no framework for editing risk, only examples of adding operational capabilities to a plan. Nearly all sources are silent on the role of intelligence in risk management. Notably, the divergent approaches of the wide-ranging studies of risk reinforce this study’s assertion that the entirety of planning is a risk management tool.

³⁵ Croft, 22.

³⁶ Croft, 22-23.

³⁷ Croft, 5.

Constructed Risk Framework

This section constructs a theorized risk framework to answer the research question and test the hypotheses. This section has four parts: the axiomatic risk spectrum, risk bounding, risk editing, and the hypothesized outcomes of risk edits.

The author has previously hypothesized an axiomatic risk spectrum from 0 percent (flawless mission execution with all objectives achieved) to 100 percent (complete mission failure with no objectives achieved).³⁸ Within this spectrum, commanders have an acceptable level of risk at which “certain risks remain low enough that additional risk reduction efforts are not required” to authorize mission execution.³⁹ In figure 5, the acceptable level of risk is met when the risk reduction and acceptance arrows meet.

The spectrum is axiomatic because it is self-evident: if commanders do not reduce risk to an acceptable level, they will not undertake the activity. When a higher authority directs mission execution, the higher commander accepts residual risk, meeting execution criteria. This spectrum builds on a theory of intelligence in which commanders edit risk through operational capabilities and intelligence resources to reduce uncertainty.⁴⁰ Operational capabilities are defined as the resources a commander directs and is supported by to achieve military objectives. Essential enabling resources and capabilities, such as logistic support, are included within this definition but enabling intelligence is not.⁴¹ Operational capabilities edit risk by influencing the environment, shaping the current state into the commander’s desired state, and overcoming hazards, obstacles, and the enemy. Operational capabilities also edit risk by adding to it. For

³⁸ Denzel, “On Intelligence, Part II: Understanding Intelligence in Risk Mitigation.”

³⁹ US Department of Defense, Joint Staff, CJCSM 3105.01, *Joint Risk Analysis*, B-5.

⁴⁰ Christopher Denzel, “On Intelligence, Part I: Why Does Intelligence Work?,” *Marine Corps Gazette* 104, no. 9 (September, 2020), 41-44.

⁴¹ The rationale for subsuming enabling resources but not intelligence is that, for example, a helicopter without fuel is no capability at all, but forces can be employed, if inefficiently, without intelligence as in a movement-to-contact.

example, the employment of aviation assets decreases some risks while increasing the risk of an aviation mishap above zero.

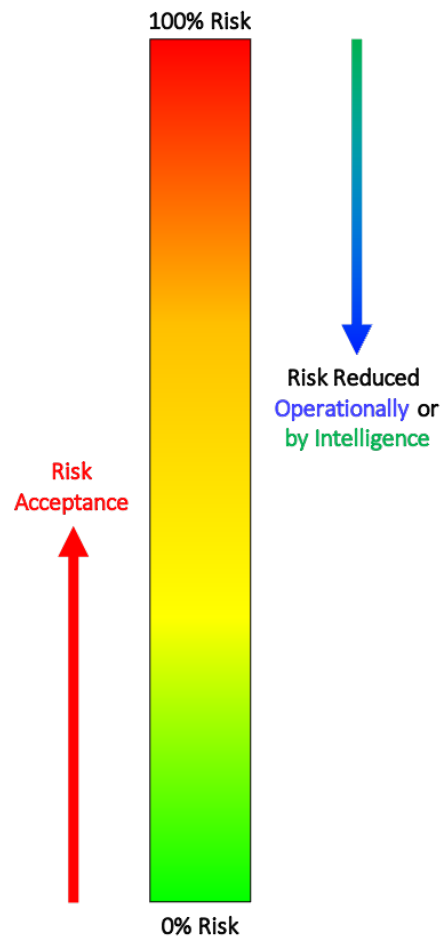


Figure 5. The Axiomatic Risk Spectrum. Created by author.

Intelligence estimates relevant factors impacting mission execution that are not within the power of commanders to affect but that are knowable, including the adversary or the effects of weather and terrain. ‘Operational capabilities’ include uncertainty regarding friendly force capabilities because commanders can directly affect that uncertainty.⁴² Uncertainty edits risk in three ways. First, it guides the allocation of operational capabilities, for example, by identifying the enemy’s size so a commander can identify a favorable force ratio. Second, it drives the

⁴² For example, commanders can affect uncertainty regarding vehicle readiness levels at mission execution through the surge of maintenance effort.

application of operational capabilities, for example, identifying vulnerabilities to target. Third, it identifies previously-unknown risks or rules out potential risks, for instance, discovering an unanticipated air defense capability or confirming the absence of anticipated air defense capabilities. The ability of intelligence to guide the employment of operational capabilities is key to the interaction of risk editing means. Intelligence has a prominent role in commanders' risk decisions compared to other staff functions because it informs what operational capabilities should do and how they should do it. Enabling capabilities, like logistics and communications, draw a "box of the possible" in which the commander can employ operational capabilities whereas intelligence informs "what to do and where to go within that 'box.'"⁴³ Without intelligence, commanders have only uninformed guesses guiding the employment of forces to obtain objectives. This is the logic behind the mantra 'intelligence drives operations.'

Using the terminology of operational art: operational capabilities are the means, employed in a specific COA (ways) informed by intelligence, to achieve ends. In this way, the constructed risk framework succeeds where risk management doctrine fails, representing risk in operational art as inherent in the interplay between ends, ways, and means. In sum, operational capabilities are how the commander changes the operational environment to achieve desired ends, and intelligence informs the allocation of those capabilities and their efficient use. Commanders use these two means to achieve an acceptable level of risk, first bounding and then editing risk.

Once the commander decides a valid objective may be obtained by action and there is sufficient intelligence to begin planning, the commander seeks to determine if the objective might be achieved at an acceptable level of risk. This step begins risk bounding, during which planners establish broad COA options and then generally bounding risk for each COA, allowing commanders to consider a finite set of options. To do this, planners first establish the broad risks of the mission, conceptually drawing a box of possible risk along the dimensions of risk to

⁴³ Denzel, "On Intelligence, Part I: Why Does Intelligence Work?," 44.

mission and risk to force (figure 6).⁴⁴ These risks generally stem from enemy action and terrain and weather effects, although political and diplomatic risks can also factor in.

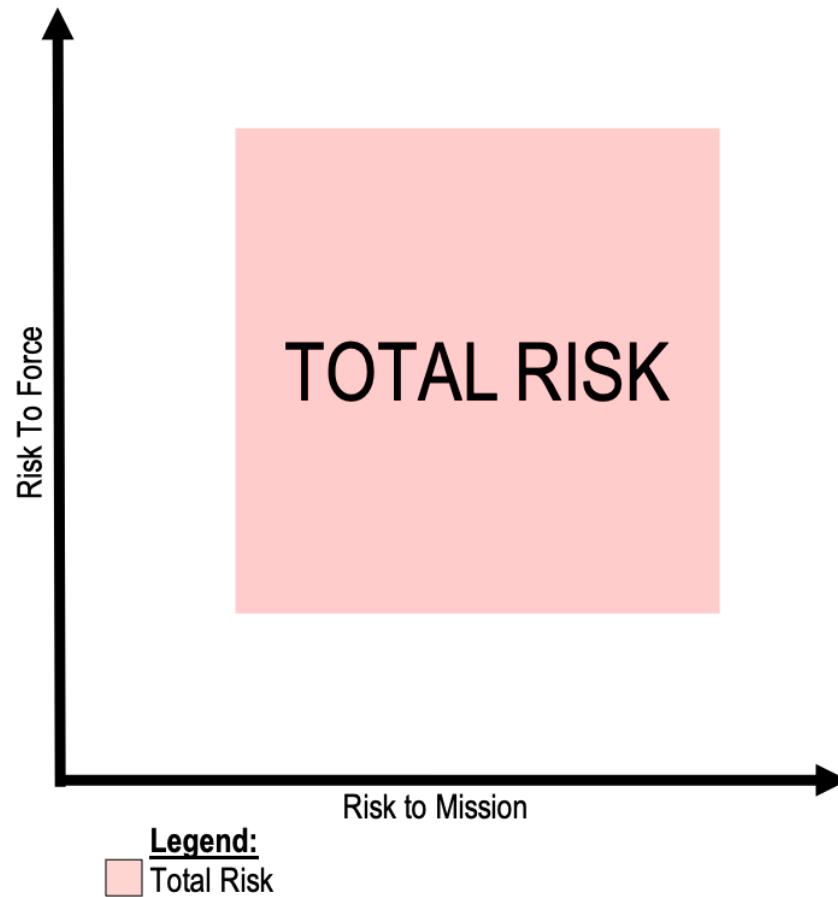


Figure 6. Conceptual Plotting of Possible Risk. Created by author.

Next, planners select broad operational capabilities to be employed, conceptually drawing an overlapping box representing the risk reduction potential of the capability. Mission type dictates where the second box is drawn. In a hostage rescue, the risk reduction of SOF is high

⁴⁴ This study is indebted to Major David Lamborn for this depiction of possibilities. Lamborn used a similar box, notionally plotted on a chart with the axes of enemy capability and enemy intent. Within these axes plotted a box representing the “realm of the possible,” bounded on the lower left by the weakest capabilities and meekest intent and on the upper right by the strongest capabilities and boldest intent. Lamborn saw the realm of the possible as an unknown the commander had to accept. This study contrasts with Lamborn’s conception by adding non-enemy uncertainties to the box, changing the axes, and by conceiving of the box as being editable through planning. David Lamborn, “Operational Risk Preparedness: General George H. Thomas and the Franklin-Nashville Campaign,” (master’s thesis, School of Advanced Military Studies, 2014), 27.

relative to conventional forces. In large-scale combat, the risk reduction of conventional forces is high relative to SOF. Operational capabilities also increase risk, enlarging the risk box. Where the two boxes overlap is the initial risk reduction potential in the plan (figure 7). Detailed planning is required to realize this potential.

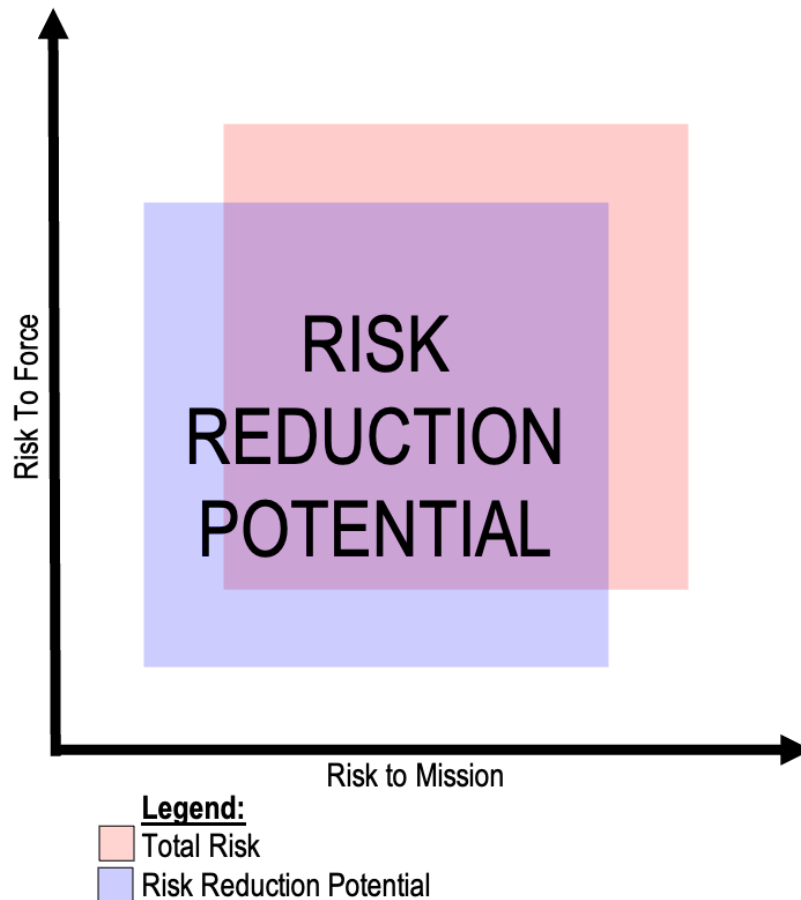


Figure 7. Conceptual Plotting of Risk Reduction Potential. Created by author.

There are three caveats to this model. First, where an element 'plots' is notional and indicates value/quantity/magnitude only in relation to other elements. No literal calculation or measurement is implied. Second, different mission types require different charts because operational capabilities are optimized for certain mission sets. Third, significant changes in the operational environment can reset planning efforts.

Commanders commence risk editing when they believe they can achieve an acceptable level of risk using identified operational capabilities. Risk editing takes two forms. The first adds,

removes, or alters risk editing resources to reduce residual risk to an acceptable level. The second adds, removes, or alters the magnitude of the total risk. Commanders accomplish risk editing through a dialogue of adjusting operational capabilities and reducing uncertainty to guide the planned employment of those capabilities. Operational capabilities reduce risk in two ways: inherently and when cued by intelligence. Tanks provide an example of inherent risk reduction against small arms. Intelligence locating a threat so that an aircraft can circumvent it demonstrates cued risk reduction. Risks inherently reduced by one capability may require cueing by another. For example, a low-flying helicopter may inherently mitigate the risk from high-altitude surface-to-air missiles (SAM). In contrast, a high-altitude bomber requires intelligence to locate the SAMs for pre-emptive suppression or circumvention. This variance in operational capabilities' inherent risk reduction impacts the utility of intelligence. By separating operational risk reduction into these two categories, we modify the risk diagram to show inherent risk reduction (solid) and cued risk reduction (striped), revealing six areas to edit risk (figure 8).

Area #1 represents inherent operational mitigation of risks not anticipated, for example, a tank's ability to deflect small arms fire during a pure tank engagement. Area #2 represents cued operational mitigation of risks not anticipated, for example, a jammer capable of jamming radar SAMs if appropriate frequencies are identified (cueing). If SAMs are not present, frequency cueing is not necessary. Area #3 represents anticipated risks inherently mitigated by operational capabilities, for example, a tank mitigating small arms fire during an infantry assault. Area #4 represents anticipated risks mitigated by operational capabilities if cued, for example, the ability to flank defensive positions if the enemy defensive plan is identified. Area #5 represents anticipated risks accepted without mitigation, for example, the presence of man-portable SAMs that cannot be located and preemptively destroyed. This risk may be partially reduced through other means (e.g., tactics or countermeasures), but the commander must accept the residual risk or refuse mission execution. Areas outside the red box (#1, #2, #6) represent 'unknown unknowns' and surprise. Unless discovered during planning, these are risks not considered and, therefore, not

relevant to commanders' risk decisions. If intelligence identifies previously unknown risks, the red box is enlarged, transferring risk from areas #1 to #3, #2 to #4, or #6 to #5 (figure 9 depicts such edits).

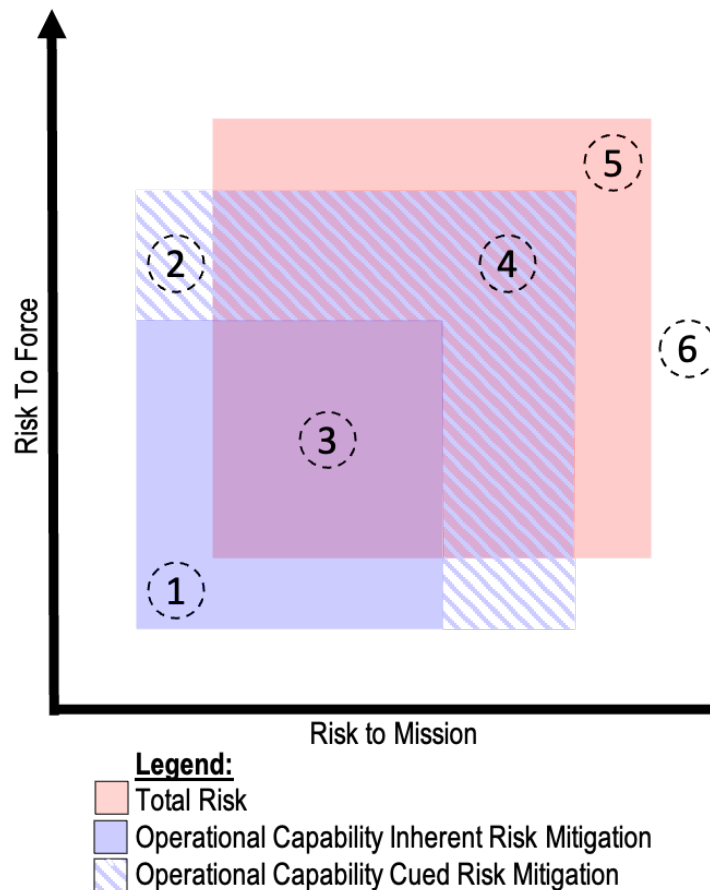


Figure 8. Risk Editing Areas. Created by author.

As the commander uses operational design to craft an operational approach to influence the environment and achieve desired objectives, the two risk editing means interact in a dialogue to edit risk. Risk editing ends when planners reduce residual risk (area #5) to an acceptable level, when the commander is directed to accept residual risk, or when planning is abandoned. This risk editing process is inseparable from planning—the two are the same. Commanders can therefore visualize planning as editing risk by using operational capabilities to expand or shrink the risk and risk reduction boxes and using intelligence to grow and shrink the risk box. Risk editing represents the how/ways of operational art and is the logic that underlies the operational design.

This study hypothesizes that the contributions of risk editing means to commanders' risk decisions are interdependent and can be redundant in some areas of overlap.⁴⁵ The constructed risk framework allows us to predict the outcome of risk edits and their interaction. Figure 9 depicts risk editing possibilities, depicting discrete edits as scalloped additions or subtractions in the six risk areas shown in Figure 8.

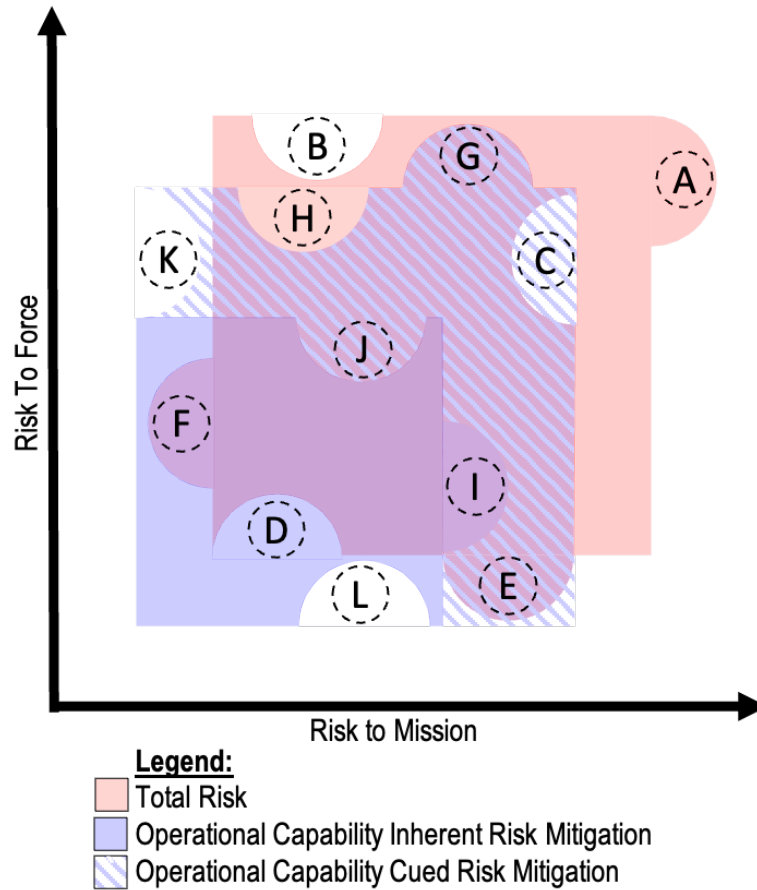


Figure 9. Risk Editing Possibilities. Created by author.

Table 1 summarizes these possibilities and their outcomes. Table 1's left side, "Risk Editing," identifies which location in Figure 9 is referenced, the means applied, which risk area in Figure 8 is edited, the editing action, and an example. The right side, "Result," identifies impacts on risk magnitude, residual risk, and the risk decision.

⁴⁵ Redundancy is distinct from information saturation or overload where decision-makers cannot take advantage of information of value because of information processing limitations.

Table 1. Risk Editing Possibilities and Hypothesized Outcomes

Risk Editing					Result		
Edit Location	Risk Reduction Means	Risk Area	Risk Edit	Example	Risk Magnitude	Risk Reduction	Risk Decision Outcome
A	Intelligence	6	Add Risk	Enemy thought to have no air defenses discovered to possess advanced SAMs.	Increased	Decreased	Requires: reduced uncertainty elsewhere, additional operational capability, or increased risk acceptance.
A	Operational Capability	6	Add Risk	Decision to add aviation capabilities results in added risk of aviation mishap.	Increased	Decreased	Requires: reduced uncertainty elsewhere, additional operational capability, or increased risk acceptance.
B	Intelligence	5	Reduce Risk	Enemy thought to have air defenses confirmed to have none.	Decreased	Increased	Allows: increased uncertainty elsewhere, reduced operational capabilities, or risk below acceptable level.
B	Operational Capability	5	Reduce Risk	Aviation capabilities removed from planning, aviation mishap risk drops to zero.	Decreased	Increased	Allows: increased uncertainty elsewhere, reduced operational capabilities, or risk below acceptable level.
C	Intelligence	4	Reduce Risk	Enemy air defenses confirmed destroyed.	Decreased	Increased	Allows: increased uncertainty elsewhere, reduced operational capabilities, or risk below acceptable level.
D	Intelligence	3	Reduce Risk	Enemy confirmed not to be planning small arms ambush of tanks.	Decreased	Unchanged	No impact to risk decision.
D	Operational Capability	3	Reduce Risk	Surge in maintenance reduces risk of vehicle breakdown; ability to self-recover remains.	Decreased	Unchanged	No impact to risk decision.
E	Intelligence	2	Add Risk	Enemy thought to have no radar SAMs confirmed to possess some; aircraft must be loaded with chaff.	Increased	Decreased	Requires: uncertainty reduced to cue operational capability, addition of operational capability with inherent risk reduction, increased risk acceptance.
F	Intelligence	1	Add Risk	Enemy confirmed to be planning small arms ambush of tanks.	Increased	Unchanged	No impact to risk decision.
F	Operational Capability	1	Add Risk	Additional vehicles added to convoy, increasing risk of breakdowns within self-recovery capacity.	Increased	Unchanged	No impact to risk decision.
G	Operational Capability	5	Add Cued Capability	Addition of air defense suppression capability requires location of air defenses.	Unchanged	Decreased	Requires: uncertainty reduced to cue operational capability, addition of operational capability with inherent risk reduction, increased risk acceptance.
H	Operational Capability	4	Reduce Cued Capability	Removal of air defense suppression capability while retaining aviation support.	Unchanged	Decreased	Requires: uncertainty reduced to cue operational capability, addition of operational capability with inherent risk reduction, increased risk acceptance.
I	Operational Capability	4	Add Inherent Capability	Addition of high-altitude bombers over-flies air defense threat.	Unchanged	Increased	Allows: increased uncertainty elsewhere, reduced operational capabilities, or risk below acceptable level.
J	Operational Capability	3	Reduce Inherent Capability	High-altitude bombers replaced with helicopters exposed to unlocated low-altitude air defense threat.	Unchanged	Decreased	Requires: uncertainty reduced to cue operational capability, addition of operational capability with inherent risk reduction, increased risk acceptance.
K	Operational Capability	2	Reduce Cued Capability	Chaff removed from aircraft not facing radar missile threat.	Unchanged	Unchanged	No impact to risk decision.
L	Operational Capability	1	Reduce Inherent Capability	Removal of anti-armor capability when enemy armor is absent.	Unchanged	Unchanged	No impact to risk decision.

Source: Created by author.

It is important to analyze when a risk edit itself is redundant and when a risk edit renders a previous edit redundant. Because the interactive complexity of any military operation means that no one action has one effect, the examples and outcomes provided are simplified to demonstrate relationships and interactions.

A risk edit is redundant when it fails to change risk reduction. Table 1 shows this happens when commanders edit risk at locations D, F, K, and L. Further analysis allows us to exclude some of these edits from our inquiry as they are made for non-risk purposes. In locations D, F, K, and L, redundancy is a second-order effect of a favorable non-risk outcome, such as achieving economy of force.⁴⁶ For example, the removal or addition of aircraft from a planned mission may be made for some non-risk purpose. The increase/decrease of the aviation mishap risk is a secondary effect. This means operational capability edits at locations D, F, K, and L produce risk redundancy while adding some non-risk value. In contrast, intelligence at locations D and F has no non-risk benefit. In both locations, intelligence gives the commander a more accurate understanding of risk, but in areas where that risk is already mitigated by inherent operational capability, making the improved accuracy of no value. We can simplify these dynamics with the hypothesis that intelligence within risk area #3 is redundant.

Redundancy can also occur when risk editing overlaps with and dominates a pre-existing risk edit, rendering the previous edit redundant. The first way this can happen is through the addition of operational capability that inherently mitigates risk (at location I), rendering the intelligence cueing in that location redundant.⁴⁷ For example, if commanders replace low-flying aircraft with those that can overfly an air defense threat, threat location intelligence enabling

⁴⁶ Detailed analysis may reveal marginal but non-zero risk advantages to such a decision. In the case of aviation countermeasure expendables, flares can replace the removed chaff, improving risk reduction against an infrared missile threat. In instances with no missile threat, expendable countermeasures may be removed entirely to reduce the waste or damage from their inadvertent discharge (a negligible, but technically non-zero cost).

⁴⁷ An operational capability requiring cueing by intelligence cannot make that cueing redundant, by definition.

lower-flying aircraft to fly around the threat is no longer of value. In contrast, intelligence cannot cause operational capabilities to be redundant. This initially appears possible in areas #3 (risk edit D) and #4 (risk edit C), where intelligence seems to render risk mitigation by operational capability extraneous. But in these cases, we can expect one of two outcomes. First, planners will remove extraneous capabilities from the plan, eliminating this redundancy. Second, the ‘redundant’ operational capability cannot be removed. For example, a tank’s ability to defend against small arms cannot be separated from its ability to protect against higher-caliber munitions. Thus, intelligence eliminating the possibility of a small arms ambush (but not removing the possibility of attack by another tank) renders the intelligence, not the tank armor, redundant. Thus, only risk edit I (adding operational capability with inherent risk mitigation) is capable of causing an overlapping risk edit that dominates previous edits. We can simplify these dynamics with the hypothesis that adding operational capability with inherent risk reduction in risk area #4 renders intelligence in that same area redundant.

It is worth pausing to note that the axiomatic risk spectrum makes redundancy (that lacks a non-risk benefit) undesirable by definition. The military maxim ‘two is one, and one is none’ speaks to the necessity of resiliency in combat. However, the resiliency a commander deems essential is factored into the acceptable level of risk. For example, if a commander determines a rifle and a sidearm are necessary for a mission, the sidearm is not redundant but instead ‘closes the gap’ to the acceptable risk. The concept of redundancy, then, does not imply achieving efficiency over effectiveness.

This analysis suggests that operational capability can cause redundancy but cannot be redundant, whereas intelligence can be redundant but cannot cause redundancy. This asymmetry results from the reversibility of resource expenditure. Generally, commanders can remove redundant operational capabilities from plans before execution, thus removing redundancy, whereas resources expended to reduce uncertainty generally cannot be recovered if found to be redundant. For example, a jamming aircraft can be removed from the plan if there are no radars to

jam, but a surveillance flight detecting a small arms ambush of a tank column cannot be un-flown even if the intelligence is useless. This dynamic is why we would usually only expect intelligence to be redundant.

This section presented the constructed risk framework comprised of the axiomatic risk spectrum, risk bounding, and risk editing, identified discrete risk edits made in planning, and identified risk edits' hypothesized effects on the commanders' risk decisions.

Methodology

This section presents the methodology for answering the research question and testing the hypotheses. This study aims to understand where redundancy occurs in risk editing during planning, hypothesizing that the planning is risk management and that risk editing means interact to collectively edit risk down to the commanders' acceptable risk level. This section has four parts: research approach, research questions, data collection, and data analysis.

This study conducts a plausibility probe of the constructed risk framework through a case study of Operation Neptune's Spear. Plausibility probes "are preliminary studies on relatively untested theories and hypotheses to determine whether more intensive and laborious testing is warranted," combining features of hypothesis-generating and hypothesis-testing techniques.⁴⁸ Because this study proposes a hypothesized risk framework not derived from thorough analysis, neither pure hypothesis-generating nor hypothesis-testing methods are suitable.

Operation Neptune's Spear presents a critical case for two reasons. First, by definition, SOF missions involve higher risk than conventional force operations, making SOF cases more likely to demonstrate risk-centric decisions with high levels of operational and intelligence resource allocation.⁴⁹ Second, while most SOF missions remain classified, Operation Neptune's Spear is open to inquiry. The mission's public narrative focuses on the riskiness of the decision and exceptional level of resources applied, with many details publicly disclosed and many primary source memoirs published in recent years.

This study structures case analysis within the constructed risk framework and focuses on the research questions below. Because this study uses a single case, it relies on intra-case comparison of considered COAs and counterfactuals considered by decision-makers.

⁴⁸ Alexander George and Andrew Bennett, *Case Studies and Theory Development in the Social Sciences* (Cambridge: The MIT Press, 2005), 75-76.

⁴⁹ US Department of Defense, Joint Staff, JP 3-05, *Joint Doctrine for Special Operations* (Washington, DC: Government Publishing Office, 2020), 1-2.

The overarching research question asks: how do intelligence and operational capability interact in redundant ways during planning to edit risk in commanders' decisions? This study asks the following focused research questions:

1. What risks are identified in planning?
2. What means are applied to edit each risk?
3. When does intelligence contribute to risk reduction?
4. When does operational capability contribute to risk reduction?

The constructed risk framework identifies two hypotheses. One: intelligence within risk area #3 is redundant. Two: the addition of operational capability with inherent risk reduction in risk area #4 renders intelligence in that same area redundant.

This study will collect data from official, semi-official, and unofficial accounts from both primary and secondary sources. Primary official accounts include public statements of government employees acting in their official capacity and publicly-released government records. Primary semi-official accounts include memoirs or interviews of government officials involved in the mission, subjected to pre-publication security review. Primary and secondary unofficial accounts include published books, news articles, and magazine articles. This study will not consider leaked classified information.⁵⁰ To test the plausibility of the hypotheses, the data collected from these studies will correspond to the research questions. This study will analyze data within the constructed risk framework.

⁵⁰ Defense Department regulations do not prohibit use of “unclassified, publicly available news reports (and other unclassified material) that may in turn discuss classified material.” In contrast, regulations prohibit accessing “underlying classified documents available on public websites or otherwise in the public domain.” Undersecretary of Defense for Intelligence, *Notice to DoD Employees and Contractors on Protecting Classified Information and the Integrity of Unclassified Government Information Technology (IT) Systems*, (Washington, DC, January 11, 2011).

Case Study

This section presents a single case study, Operation Neptune's Spear, that provides data to answer the research question and test the hypotheses. Published accounts by numerous participants at all levels ensure adequate data for analysis. Despite the mission's sensitivity, public sources agree on the basic facts and most details, making the case uniquely open to inquiry for a plausibility probe of the constructed risk framework.⁵¹ The case does not recreate the entire narrative of the mission. Instead, it explores how decision-makers conceived of and edited risk throughout planning to achieve an acceptable risk for execution. This section has three parts: an overview of the case, data on each focused research question, and a summary.

Operation Neptune's Spear Overview

This case covers the period from May 2009 through May 2011. The key actors include President Barack Obama, CIA Director Leon Panetta, and Joint Special Operations Command Commander Vice Admiral William McRaven.

⁵¹ Nearly all sources, from all levels of government, investigative journalists, and raid participants, agree on the narrative of planning and execution. There are disagreements on minor details (for example, when the reinforcing MH-47 arrived or who fired the shots that killed bin Laden) and initial confusion about details in the days and hours following the mission (such as the resistance offered by bin Laden). These disagreements are typical of any major event in which many individuals take part. None of these discrepancies materially alter the narrative or impact the research questions.

However, a small number of conspiracists reject the 'official' narrative entirely. The most prominent of these is Seymour Hersh (in a London Review of Books essay later converted to a chapter in the short book *The Killing of Osama Bin Laden*). Mark Bowden and Peter Bergen explain the implausibility of these conspiracies at length. Mark Bowden, "There's Just One Problem with Those Bin Laden Conspiracy Theories," *Vanity Fair*, October 16, 2015, <https://www.vanityfair.com/news/2015/10/mark-bowden-bin-laden-capture-conspiracy>; Peter L. Bergen, "The New York Times' Bizarre Story On Osama Bin Laden's Death," *CNN*, March 17, 2020, <https://www.cnn.com/2015/10/18/opinions/bergen-new-york-times-bin-laden-death/>.

While Bowden and Bergen had a stake in the 'official' narrative (on which they each independently published books), they convincingly argue the logical and journalistic shortfalls of the conspiracists' narratives. The conspiracists' accounts, reviewed for this study, are neither credible nor plausible for the reasons Bowden and Bergen outline and are not included in the data collection. Carlotta Gall highlights the one credible claim from the conspiracy accounts: some of the intelligence leading CIA to Abbottabad may have come from a rogue Pakistani intelligence officer cashing in on the United States' \$25 million reward for leads on bin Laden. Even if this detail is accurate, it does not meaningfully alter analysis of this case regarding the research questions. Carlotta Gall, "The Detail in Seymour Hersh's Bin Laden Story That Rings True," *The New York Times Magazine*, May 12, 2015.

In May 2009, President Obama directed that “capturing or killing bin Laden was to be the most important objective of America’s intelligence services.”⁵² By August 2010, CIA had tracked a suspected bin Laden courier to a suspicious compound in Abbottabad, Pakistan, that the CIA called Abbottabad Compound 1 (AC1) (figure 10).⁵³ In September, Panetta briefed the President, who directed CIA to find out more.⁵⁴



Figure 10. Abbottabad Compound 1. New York Times, “How Osama Bin Laden Was Located and Killed,” New York Times, May 7, 2011, <https://archive.nytimes.com/www.nytimes.com/interactive/2011/05/02/world/asia/abbottabad-map-of-where-osama-bin-laden-was-killed.html>.

Surveillance revealed a tall man, a member of a third family, who never left the compound and went outdoors only to pace within an enclosed terrace. CIA called him ‘the Pacer.’ By winter, CIA had exhausted traditional surveillance means and Panetta demanded increasingly creative ideas. Analysts produced a “chart of 38” methods as outlandish as using stink bombs to

⁵² Leon Panetta, *Worthy Fights: A Memoir of Leadership in War and Peace* (New York: Penguin Books, 2014), 291-292.

⁵³ Michael Morell and Bill Harlow, *The Great War of Our Time: The CIA’s Fight Against Terrorism from al Qa’ida to ISIS* (New York: Twelve, 2015), 146-147. Peter L. Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad* (New York: Broadway Paperbacks, 2012), 123. Panetta, 294.

⁵⁴ Barack Obama, *A Promised Land* (New York: Crown, 2020), 677.

flush the Pacer out for a clear photograph or DNA-testing sewage pipe contents.⁵⁵ None worked; US intelligence “spared no resource—human or technological” to identify the Pacer but produced only circumstantial evidence.⁵⁶

By December, “based on what I’d heard,” Obama recalled, “I decided we had enough information to begin developing options for an attack on the compound.”⁵⁷ It became clear that CIA lacked the capabilities to pull off the mission.⁵⁸ Abbottabad is “home to the Pakistan Army’s military academy, a large ammunition depot, a barracks which housed a Pakistani Army infantry battalion, and several police stations” as well as a nuclear weapons site.⁵⁹ CIA would need military support to get the Pacer out. In early 2011, Panetta briefed McRaven, who reminded Panetta that “no matter how well the operation in Abbottabad was planned, long experience taught that something would go wrong.”⁶⁰ CIA needed “men who could think on their feet and make good decisions under pressure, men who had seen all manner of snafus and survived.”⁶¹

On March 14, the President convened the National Security Council to discuss the intelligence and consider options. There were six broad COAs: level AC1 with B-2 bombers, conduct a heliborne SOF raid, execute a CIA ground raid, conduct a combined US-Pakistan raid, ask Pakistan to act unilaterally, or wait for more intelligence (Table 2).⁶² The President balked at

⁵⁵ Morell and Harlow, 152. Panetta, 297.

⁵⁶ Panetta, 294. David E. Sanger, *Confront and Conceal: Obama’s Secret Wars and Surprising Use of American Power* (New York: Broadway Paperbacks, 2013), 91-92.

⁵⁷ John O. Brennan, *Undaunted: My Fight Against America’s Enemies, at Home and Abroad* (New York: Celadon Books, 2020), 229. Morell and Harlow, 153.

⁵⁸ Panetta, 299.

⁵⁹ William H. McRaven, *Sea Stories: My Life in Special Operations* (New York: Grand Central Publishing, 2020), 275. Graham Allison, “How It Went Down,” *Time*, May 7, 2012.

⁶⁰ McRaven, 278. Bowden, *The Finish: The Killing of Osama Bin Laden*, 153.

⁶¹ Bowden, *The Finish: The Killing of Osama Bin Laden*, 153.

⁶² Panetta, 306-307, 311. Mark Owen, *No Easy Day: The Firsthand Account of the Mission that Killed Osama bin Laden* (New York: New American Library, 2012), 171. These are the numbers Panetta gives to each COA. For continuity and clarity, the rest of the case will continue to refer to these COAs by Panetta’s numbers and sequentially number additional COAs in the order proposed.

Table 2. COA Options

COA	Description
1	B-2 Strike
2	Heliborne SOF Raid
3	CIA Ground Raid
4	US-Pakistan Raid
5	Unilateral Pakistani Raid
6	Wait for Better Intelligence
7	Low-Yield Glide Bomb

Source: Created by author.

COA 1's estimated civilian casualties, discarding it unless considerably scaled-down.⁶³ COA 2 risked the most American lives but would confirm the Pacer's identity. COA 3 was complicated and required the combat experience CIA lacked.⁶⁴ Because Pakistan "had a history of tipping off targets ... ahead of raids," neither COA 4 nor 5 was acceptable.⁶⁵ Panetta was confident the intelligence would not improve, making COA 6 unsuitable.⁶⁶ Planners later added a seventh COA by scaling down the strike to an experimental gliding bomb dropped from a small unmanned aerial vehicle (UAV).⁶⁷ COA 7 resolved collateral damage and civilian casualty concerns, but the

⁶³ Obama, 680. Panetta, 309, 311. Brennan, *Undaunted: My Fight Against America's Enemies, at Home and Abroad*, 232.

⁶⁴ McRaven, 284. Morell and Harlow, 156.

⁶⁵ James R. Clapper, *Facts and Fears: Hard Truths from a Life in Intelligence* (New York: Viking, 2018), 151. Morell and Harlow, 156.

⁶⁶ Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 164, 172-173.

⁶⁷ Brennan, *Undaunted: My Fight Against America's Enemies, at Home and Abroad*, 233. Mark Bowden, *The Finish: The Killing of Osama Bin Laden* (New York: Atlantic Monthly Press, 2012), 196. Gregory McNeal, "Raytheon's New Collateral Damage Minimizing Munition," *Forbes*, August 10, 2012, <https://www.forbes.com/sites/gregorymcneal/2012/08/10/raytheons-new-collateral-damage-minimizing-munition/>. Numerous sources refer to the Small Tactical Munition as a "missile," although it is technically a gliding bomb. Numerous sources refer to the UAV as an MQ-1 Predator but the employment of stealth platforms over Abbottabad make this unlikely. Bowden describes the UAV as "model airplane" sized. Bowden, *The Finish: The Killing of Osama Bin Laden*, 196. The Small Tactical Munition is designed to be employed by far smaller UAVs than the MQ-1, such as the RQ-7 Shadow. Spencer Ackerman, "Tiny 2-Foot Bomb Could Be 'Months' Away From Drone War," *Wired*, July 13, 2012, <https://www.wired.com/2012/07/small-drone-missile-soon/>.

munition was untested and even a direct hit might not have killed the Pacer, allowing him to escape.⁶⁸

Because any option “would involve violating the territory of a putative ally in the most egregious way possible, short of war,” the President needed proof the Pacer was bin Laden to assuage Pakistan’s inevitable outrage.⁶⁹ Physical evidence wasn’t strictly necessary—ironclad intelligence might do.⁷⁰ But the intelligence was circumstantial. Thus, COA 7 hung on an intelligence breakthrough—the only other option was COA 2.⁷¹ McRaven was confident his forces could handle the compound but needed subject matter experts to determine if the insertion and extraction were feasible—the President gave McRaven two weeks.⁷²

By March 29, McRaven had validated COA 2’s feasibility, focusing on “the overall concept of what the risk and probability was.”⁷³ Because of this validation and the ability to confirm the Pacer’s identity, the President privately settled on COA 2 as the only realistic option.⁷⁴ The President’s questions turned to Pakistan’s reaction and the ability to get to and from AC1 undetected.⁷⁵ McRaven needed to develop a detailed plan and rehearse it.⁷⁶

⁶⁸ Obama, 683. McRaven, 293. Morell and Harlow, 159. Robert M. Gates, *Duty: Memoirs of a Secretary at War* (New York: Knopf, 2014), 540. While the President reports COA 7 had been tested by April 28, 2011, Raytheon continued testing and developing as late as 2012. Obama, 685. Airforce Technology, “Raytheon’s Pyros STM Completes Guided Flight Testing,” *Airforce Technology*, August 8, 2012, <https://www.airforce-technology.com/news/newsraytheons-pyros-stm-testing/>.

⁶⁹ Obama, 679-680. Bowden, *The Finish: The Killing of Osama Bin Laden*, 166, 173.

⁷⁰ Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 175.

⁷¹ Morell and Harlow, 156.

⁷² Obama, 682. Bowden, *The Finish: The Killing of Osama Bin Laden*, 164-165. McRaven, 289.

⁷³ Alex Quade, “Exclusive: Legendary Special Operations Aviator Reveals Bin Laden Mission Details for the first Time,” *Military Times*, March 17, 2020. <https://www.militarytimes.com/news/your-military/2020/03/17/legendary-special-operations-aviator-reveals-bin-laden-mission-details-for-the-first-time/>.

⁷⁴ Bowden, *The Finish: The Killing of Osama Bin Laden*, 175.

⁷⁵ Brennan, *Undaunted: My Fight Against America’s Enemies, at Home and Abroad*, 236. Obama, 683.

⁷⁶ Brennan, *Undaunted: My Fight Against America’s Enemies, at Home and Abroad*, 235. McRaven, 295.

McRaven “cherry-picked” the most experienced members from the most elite SEAL unit, assembling a “dream team” to maximize capability at AC1 while minimizing the helicopter insertion force.⁷⁷ Between April 2 and 18, the raid force conducted rehearsals, first focusing on actions at the compound, then replicating mission and weather conditions en route.⁷⁸ On April 19, the President reviewed the detailed plan. Concerned about Pakistani forces encircling the raid force, he directed the force plan to fight their way out, if necessary.⁷⁹ In addition to a larger quick reaction force (QRF), McRaven added “a ‘Gorilla Package’ of U.S. fighters, radar-jamming aircraft, attack helicopters, the works,” on standby in Afghanistan.⁸⁰

The National Security Council convened a final time on April 28. A red team analysis of the intelligence concluded only a forty-to-sixty percent likelihood bin Laden was at AC1, rekindling a debate about the estimates’ variance.⁸¹ An experienced analyst explained the disagreement was over analytic instincts, not data or methodology.⁸² Analysts with experience on Iraqi weapons of mass destruction were more cautious; those with successes hunting al-Qaida leaders were more optimistic.⁸³ “What you started getting was probabilities that disguised uncertainty,” Obama recounted.⁸⁴ Given the intelligence effort expended and the range of estimates, the President stated that anything short of 100 percent was effectively 50-50, ending the debate.⁸⁵ However, the President felt that “those who had voiced doubts about the intelligence

⁷⁷ Sean Naylor, *Relentless Strike: The Secret History of Joint Special Operations Command* (New York: St. Martin’s Press, 2015), 393. Owen, 148.

⁷⁸ McRaven, 298, 300. Bowden, *The Finish: The Killing of Osama Bin Laden*, 192-193, 195.

⁷⁹ McRaven, 304.

⁸⁰ McRaven, 305, 323.

⁸¹ McRaven, 305. Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 194, 196.

⁸² Brennan, *Undaunted: My Fight Against America’s Enemies, at Home and Abroad*, 238.

⁸³ Morell and Harlow, 160-161.

⁸⁴ Bowden, *The Finish: The Killing of Osama Bin Laden*, 162.

⁸⁵ Obama, 685.

case and raid option had helped improve the operational planning for the raid.”⁸⁶ While he may have had only had 50 percent confidence that bin Laden was at AC1, he had 100 percent confidence that “the SEALs would find a safe way out of Abbottabad, even if some of our calculations and assumptions proved to be incorrect.”⁸⁷ On April 29, the President gave the order for execution, stating, “It’s a go. And the only thing that makes it not a go is if Bill McRaven and his folks believe that either weather or conditions on the ground increase the risk to our forces.”⁸⁸ The raid launched at 2300 on May 1, successfully killing bin Laden and eluding Pakistani defenses (figure 11).



Figure 11. Map of Operation Neptune’s Spear. Modified from New York Times, “How Osama Bin Laden Was Located and Killed.”

Focused Research Questions

The first focused research question asks: what risks are identified in planning? The case exhibits seven overarching risks, each comprised of discrete components. Table 3 lists overarching risks in the left column and component risks in the right. (For readability, Table 3 omits footnotes. The appendix includes a fully-footnoted version.)

⁸⁶ Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 202-203.

⁸⁷ Obama, 688. Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 203.

⁸⁸ Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 205.

The second focused research question asks: what means are applied to edit each risk?

Table 4 summarizes the specific means used to edit each component risk. Table 4 references the component risks identified in Table 3; the middle and right columns list the intelligence means and operational capabilities applied to edit risk, respectively. (For readability, Table 4 omits footnotes. The appendix includes a fully-footnoted version.)

Table 3. Risks Identified in Planning

Overarching Risk	Component Risk
1) The Pacer was not bin Laden	1.1) False-positive from analytic bias
	1.2) Political consequence from action against a false positive
	1.3) Inability to prove the Pacer's identity if he were bin Laden
2) bin Laden would escape before the raid	2.1) Leak tips-off bin Laden
	2.2) bin Laden moves on his own
	2.3) Pakistani government or rogue Pakistani official tips off bin Laden
	2.4) bin Laden detects aggressive surveillance techniques
3) Failure during insertion and extraction of forces	3.1) Pakistani forces surround the raid force, preventing extraction
	3.2) Pakistani air defense detect or shoot-down the raid force
	3.3) Unexpected fuel consumption forces unplanned refueling in hostile tribal areas
	3.4) Helicopter crashes or malfunctions
	3.5) Compound residents shoot down a helicopter on approach
4) Operations at AC1 fail	4.1) The raid force is unable to clear AC1
	4.2) AC1 is rigged to explode
	4.3) Compound residents detonate a suicide vest
	4.4) bin Laden flees or hunkers-down in a safe room
	4.5) Raid force unable to overcome unanticipated risk
5) Pakistan's adverse reaction	5.1) Pakistan stops cooperation with US counterterrorism
	5.2) Violence breaks out at the embassy and consulates in Pakistan
	5.3) Pakistan shuts off land and air logistics routes to or encourages proxies to attack coalition forces in Afghanistan
	5.4) A US citizen held by Pakistan is held indefinitely or is otherwise harmed
6) al-Qaida response	6.1) Future al-Qaida leaders improve security, becoming harder to find
	6.2) al-Qaida mounts attacks in retribution
7) Compromised sources, methods, or capabilities reduce future effectiveness	7.1) Sensitive technology compromised
	7.2) Sensitive intelligence sources and methods compromised

Source: Created by author.

The third focused research question asks: when does intelligence contribute to risk reduction? With some exceptions, each intelligence means in Table 4 reduced risk. But in most cases, that risk editing has caveats or limitations.

The President partially reduced the first risk through the most extraordinary intelligence collection effort in living memory, a diverse analytic team, and a red team conducting structured

Table 4. Risk Editing Means Applied in Planning

Subordinate Risk	Uncertainty Reduction	Operational Capability
1.1	Extraordinary intelligence collection	
	Multiple analyst opinions, red team analysis	
1.2	Red-team analysis	
1.3	Local vaccine drive to collect and DNA-test needles	Capture the Pacer Facial recognition of body DNA test body
2.1		Extreme compartmentalization CIA-only planning at first Mission execution Covert action authorities Not involving Pakistan
2.2		Mission execution
2.3		Not involving Pakistan
2.4	Abstain from aggressive surveillance Increase less detectable surveillance	
3.1	Assess Pakistani reaction time Real-time communications monitoring	Time-limited mission Kala Dhaka QRF Afghanistan QRF and “Gorilla package” Translator to assuage locals Moonless night Five-person cordon force Paused National Security Agency (NSA) system upgrades Cherry-picked team
3.2	Rehearsed against simulated Pakistani radars Estimate of Pakistani air force capability to engage helicopters at night Real-time communications/air picture monitoring	Stealth H-60s Terrain- and acoustic-masked holding area for MH-47s Kala Dhaka MH-47s 30 minutes in trail Paused NSA system upgrades Moonless night Early-summer mission execution Helicopter electronic countermeasures “Gorilla package” with fighters and jamming aircraft Stealth RQ-170 surveillance
3.3	Temperature/wind estimate Rehearsals at mission temperature, altitude, distance	Limited time at AC1 Refueling at Kala Dhaka
3.4		Identical ground force composition on each helicopter Downed helicopter drills QRF recovery
3.5	Measured acoustic detection during rehearsals	Acoustically-dampened H-60s Adjusted helicopter approach to reduce acoustic detection from 120 to 60 seconds Snipers in helicopter doors
4.1	Exquisite intelligence on exterior layout	Tactics agnostic to interior layout and experience with countless variations Hyper-realistic mock-ups
4.2	Pattern of life for Pakistani military helicopters	Explosive ordnance disposal technicians Acoustically-dampened H-60s Adjusted helicopter approach to reduce acoustic detection from 120 to 60 seconds
4.3		Self-defense rules of engagement
4.4	Water table estimate	Raid, not glide bomb Bunker-busting bombs to penetrate 30 feet underground Military working dog
4.5		SEALs’ extensive raid experience Military working dog
5.1		Proof of bin Laden’s identity
5.2	Estimate of Pakistani reaction	Proof of bin Laden’s identity Security plan for diplomatic facilities US Consulate in Peshawar evacuated
5.3		Proof of bin Laden’s identity Strengthen Northern Distribution Network
5.4		Proof of bin Laden’s identity Efforts to secure release before the raid
6.1		Collection and exploitation of intelligence material at AC1
6.2	Estimate of al-Qaida reaction	Security plan for diplomatic facilities US Consulate in Peshawar evacuated
7.1	Review and approval process	Explosives to destroy a crashed helicopter
7.2	Intelligence gain/loss estimate	Extreme compartmentalization Covert action authorities

Source: Created by author.

analytic techniques.⁸⁹ However, the limited circumstantial evidence constrained the risk reduction offered by these means. In the President's estimation, any risk reduction short of 100 percent was effectively 50-50, meaning partial uncertainty reduction provided no value. The President reduced the second risk by abstaining from more aggressive surveillance and increasing less detectable surveillance. Risks one and two were inherently in tension. Confirming the Pacer's identity ensured that bin Laden would become spooked and escape. Eliminating the risk of escape was pointless if the Pacer was not bin Laden. The President reduced the third risk by estimating the reaction time of local Pakistani forces, estimating Pakistani air force abilities against helicopters at night, real-time monitoring of Pakistani communications and positions, and forecasts of temperatures and wind conditions. Rehearsals further reduced uncertainty by simulating operational capabilities' performance under these conditions, including temperature, altitude, and distance, the ability to avoid Pakistani radar detection, and acoustic detection at AC1. The data is mixed on the value of intelligence in the case of the fourth risk. What risk reduction the President achieved was provided through exquisite intelligence collection on the exterior layout of AC1, estimates of the water table in Abbottabad, and inadvertent collection on Pakistani helicopter flight patterns over AC1. The data suggest risk reduction from this information was marginal.⁹⁰ Intelligence contributed to risk reduction in the cases of risks five and six only through the estimate of Pakistan and al-Qaida's reactions. The President reduced the seventh risk through the review and approval and intelligence gain/loss estimate processes.

⁸⁹ Structured analytic techniques are methods to reduce bias by structuring analysis. The structure makes clear to intelligence analysts the logical links between data and conclusions, allowing others to 'audit' analysis. The sources specify only one technique, Analysis of Competing Hypotheses, although others were probably used. Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad* 194, 196.

⁹⁰ For example, the helicopter crash and a false exterior wall significantly altered the scheme of maneuver at AC1, however all accounts agree that these surprises caused negligible disruption to the mission. This fact suggests that while intelligence collection on the compound may have contributed to a consistent but circumstantial theory that the Pacer was bin Laden, it probably contributed little to success in mission execution. Jake Tapper, Martha Raddatz, and Jessica Hopper, "Osama Bin Laden Raiders Encountered False Door, Found Small Arsenal in Compound," *ABC News*, May 5, 2011, <https://abcnews.go.com/Politics/osama-bin-laden-death-president-obama-visit-ground/story?id=13533748>

The fourth focused research question asks: when does operational capability contribute to risk reduction? All operational capabilities in Table 4 reduced risk in the decision to execute. Capabilities that failed to contribute to risk in execution, such as the QRF and “Gorilla package,” failed only after the fact because they hedged against unrealized contingencies.

The President reduced the risk that the Pacer was not bin Laden by selecting a COA that allowed identification of the body. He reduced the risk of bin Laden escaping through extreme compartmentalization and covert action authorities, expanding the planning team incrementally, and excluding the Pakistanis. Finally, mission execution itself reduced the second risk. While COA selection aimed to reduce the first two risks, detailed planning reduced the second two. The risk editing achieved by these capabilities is self-explanatory or described in the case overview with two exceptions. First, while real-time monitoring of Pakistani communications reduced uncertainty, pausing upgrades on supporting NSA systems was a form of operational capability that bolstered uncertainty reduction. Second, while COA 1 was not selected, bunker-busting bombs would have reduced the risk of bin Laden surviving a strike in an underground bunker or tunnel. The President reduced the risk of Pakistan’s adverse reaction by selecting a COA that would prove bin Laden’s identity, evacuating and increasing the security at diplomatic facilities, and enhancing the throughput of the Northern Distribution Network. The release of US citizen Ray Davis on March 16, 2011, eliminated the component risk of his harm or indefinite detention. The evacuation of and increased security at regional diplomatic facilities reduced the sixth risk with the intelligence haul from a successful raid offering the chance to disrupt attack planning. Finally, the President’s use of covert action authorities and extreme compartmentalization limited the risk of compromised sources and methods. The plan to destroy any sensitive capabilities, including the stealth H-60s, also reduced the risk of compromise.

This section presented the case study of Operation Neptune’s Spear and asked four focused research questions. The data available provided rich and consistent details on the location

and killing of bin Laden, including a comprehensive view of the COAs considered, comparison rationale, and detailed planning considerations for the selected COA.

Findings and Analysis

This section analyzes the evidence gathered for Operation Neptune's Spear, applying the data collected to determine if the case study supports, does not support, or provides mixed evidence on the hypotheses. The collective results of both hypotheses determine the plausibility of the constructed risk framework and its implications for understanding risk editing in planning. This section first identifies findings from the four focused research questions and then analyzes the two hypotheses considering the findings.

The first focused research question asked: what risks are identified in planning? The data indicated twenty-five discrete risks, each a component of one of seven overarching risks. The constructed risk framework did not anticipate two findings revealed by this research question. First, risks 1 and 2 dominated risks 3-7 in the President's decision to execute the mission. Identifying dominant risks allowed the President to prioritize and discard options, producing dominant COAs and allowing planners to narrow options for consideration and refinement. COAs that could confirm the Pacer was bin Laden, such as COAs 2 and 3, dominated COAs that could not, such as COAs 1 and 7, even if non-dominant COAs were comparatively superior at reducing other risks.⁹¹ Planners implicitly ranked even non-dominant risks, for example prioritizing risk 3 over risk 4 by preferring to launch in May rather than in the summer when the mission would require more helicopters, increasing risk 3. The second unanticipated finding was the small number of overarching risks, suggesting that even with large and complex missions, planners can

⁹¹ Hillary Rodham Clinton, *Hard Choices* (New York: Simon & Schuster Paperbacks, 2015), 180. One can also infer a logical and moral objection the President had to COA 7 from his reaction to COA 1's civilian casualty estimates ("America was not going to obliterate them on a fifty-fifty chance of also killing Osama bin Laden"). Panetta, 311. Bowden, *The Finish: The Killing of Osama Bin Laden*, 164. If advocates of COA 7 believed the Pacer was bin Laden, then COA 2 was preferable as it would allow the United States to justify the violation of an ally's sovereignty. If advocates of COA 7 did not believe the Pacer was bin Laden, and thus the insertion of a raid force deep into Pakistani territory was too risky, then the morality of killing an innocent man (and the children around him) with a UAV 'just in case' he was bin Laden was appalling.

categorize discrete component risks into a manageable number of overarching risks to aid in evaluating tradeoffs and making risk decisions.

The second focused research question asked: what means are applied to edit each risk? This study found risk editing means used to reduce twenty-two discrete uncertainties and the use of forty-eight discrete operational capabilities. An unexpected finding from this question was that planners edited some component risks with only one risk editing means, suggesting that commanders may not be able to apply both risk editing means to every risk. Another unexpected finding was that dominant risks aided planners in selecting risk editing means by identifying means in tension with dominant risks. For example, working with the Pakistanis (COAs 4 and 5) would eliminate risks 1, 3, 5, and 7 while significantly reducing risk 4—making the mission nearly risk-free.⁹² But the increase to risk 2 was not worth reduction to the other risks.⁹³ Similarly, when CIA identified intelligence techniques at risk of tipping off bin Laden or the Pakistanis, planners discarded those techniques as unacceptable.

The third focused research question asked: when does intelligence contribute to risk reduction? This study found that intelligence contributed to risk reduction in most cases, even if only nominally. The analysis of the hypotheses below explores where and why intelligence failed to contribute to risk reduction.

The fourth focused research question asked: when does operational capability contribute to risk reduction? In every case, operational capability reduced risk in the decision to execute. Planners optimized risk reduction by removing or adjusting capabilities that would fail to reduce or increase risk but served no non-risk purpose. For example, launching the QRF helicopter thirty minutes after the stealth H-60s ‘removed’ a QRF capability in the first 30 minutes of the raid, when it was unlikely to be needed. Similarly, limiting the raid force to two stealth H-60s

⁹² Working with the Pakistanis would eliminate the first risk because there would be no negative consequences to the United States of a US-Pakistani raid on the wrong target.

⁹³ McRaven, 287.

‘removed’ an additional twelve-to-twenty-four ground troops that would have decreased risk at AC1 but required a third non-stealthy helicopter. Another unexpected finding was the interrelation of risks. Because risks 3 and 4 were related, the operational capabilities applied to edit the two risks were in some cases shared (synergistic) and in other instances in tension (antagonistic). This relationship created high-payoff risk editing options and tradeoffs during detailed COA development. For example, most failures during insertion increased the chance of alerting the Pakistani military, thereby increasing the possibility of a ground intervention and subsequently risking failure at AC1. Failures on the objective that increased time spent at AC1 increased the risk of Pakistani intervention hindering extraction. This synergy meant that a faster and more effective raid force decreased both risks. Aspects of these two risks were also in tension, with a larger raid force increasing the chance of success at AC1 but requiring a larger insertion/extraction helicopter force, increasing the risk of failure en route. This antagonism led to a smaller raid force to reduce the risk en route, accepting more risk at AC1.

The first hypothesis is that intelligence within risk area #3 is redundant. The research questions reveal two areas where intelligence was redundant. First, the extreme proficiency of the raid force allowed inherent mitigation of risk in clearing AC1. Even before intelligence collection was complete, multiple individuals remarked that there were few concerns in clearing AC1. Excepting Pakistani interference during the raid, this placed actions on the objective in risk area #3.⁹⁴ The failed breach of a false door in the compound wall and helicopter crash up-ended the planned scheme of maneuver to clear AC1. Despite this disruption, the mission met all objectives and timelines, further supporting the first hypothesis. The second area intelligence was redundant was where risk decision ‘certainty thresholds’ existed, an unanticipated feature of the constructed risk framework. Because the President deemed the identification of bin Laden as essential,

⁹⁴ The risks posed by Pakistani interference during actions at AC1 required cueing by intelligence in the form of estimating response time and real-time monitoring of communications and activities in order to plan to limit the raid’s duration and extract before Pakistani forces could arrive.

anything less than 100 percent was 50-50. This meant that beyond a certain point, additional intelligence that failed to conclusively identify bin Laden was redundant with the selected COA to capture and conclusively identify the Pacer by DNA test.⁹⁵ Indeed, because of uncertain reference measurements (e.g., the thickness of nearby walls), CIA's shadow height analysis only narrowed the Pacer's height to 5'8"-6'8".⁹⁶ A refined reference measurement that estimated the Pacer's height as 6'0"-6'4" would have marginally improved certainty of the Pacer's identity but provided no value to the President's risk decision because it fell short of certainty.⁹⁷ Therefore, the data support hypothesis one, demonstrating that in risk area #3, intelligence offers redundant value for the risk decision.

The second hypothesis is that the addition of operational capability with inherent risk reduction in risk area #4 renders intelligence in that same area redundant. The research questions revealed two ways operational capability can render intelligence redundant. The first is when operational capabilities are employed that avoid risk altogether. For example, initial planning identified that the raid force would have precisely enough fuel to fly the mission without refueling if winds and temperatures remained within a narrow range, making the weather forecast essential to the risk decision to launch. Once planners added a refueling stop, the helicopters could carry sufficient fuel to handle all probable weather conditions, rendering a precise weather forecast redundant for that particular risk. Operational capabilities also make intelligence redundant when those capabilities inherently mitigate multiple risks. Mitigating multiple risks creates a threshold for additional intelligence to provide value, rendering uncertainty reduction regarding a set (but not all) of those risks of no value to the risk decision. For example, planners

⁹⁵ Clearly, the CIA required some minimum level of certainty about the Pacer's identity to convince the President they may have found bin Laden. However, CIA's case for the Pacer being bin Laden was based on only four pieces of circumstantial evidence and additional risk editing efforts never strengthened the case.

⁹⁶ Woodward, "Trail to Bin Laden Began with One Call."

⁹⁷ Because bin Laden's estimated height of 6'4" was itself uncertain, only a truly diminutive height range would have provided value by *disconfirming* the Pacer as bin Laden.

expected residents of AC1 would be armed with small arms or rocket-propelled grenades. In response, the plan called for snipers to open the doors of the helicopters as they approached AC1 to suppress either threat.⁹⁸ A hypothetical estimate that subsequently confirmed the absence of rocket-propelled grenades would still require snipers to suppress small arms threats, rendering such intelligence redundant. Only an estimate that definitively proved the absence of all weapons at AC1 would allow the helicopters to keep their doors closed as they approached.

Synthesizing the analysis of the two hypotheses is crucial to answering the overarching research question: how do intelligence and operational capability interact in redundant ways during planning to edit risk in commanders' decisions? Redundancy stems from the asymmetry of when each means is applied. Because uncertainty reduction typically happens during planning and operational capabilities are employed chiefly in execution, commanders can often achieve comparatively more efficient risk reduction with the latter. Thus, we expect and find no operational capabilities that failed to reduce risk in the execution decision. Planners removed any operational capability found not to edit risk (without some non-risk benefit) and factored in (and edited) the risks operational capabilities introduced (such as a helicopter crash). Planned operational capabilities that fail to edit risk *after* the risk decision (during execution) were hedges against likely but unrealized contingencies, such as the QRF helicopters' mitigation of a Pakistani ground force intervention that did not materialize. By comparison, uncertainty reduction often occurs during planning, making such efforts more speculative and allowing commanders to know their value before they make their decision. This produces higher real and perceived *rates* of risk reduction for operational capabilities as compared to intelligence. Knowing the value of intelligence (some of which will have been unprofitable) but not yet knowing the risk value of operational capabilities (all of which are expected to be valuable) before the execution decision may bias commanders' appreciation of the balance between the two means. Knowing the value of

⁹⁸ McRaven, 317-318. Owen, 4-5.

intelligence efforts at the moment of the decision may lead commanders to discount the actual value contributed by intelligence resources. Not knowing the realized value of operational capabilities at the moment of the decision may lead commanders to overestimate their contribution to the risk decision. Thus, intelligence is more likely to both be and be perceived as redundant as compared to operational capabilities.

The analysis of the evidence and hypotheses suggests the plausibility of the constructed risk framework, determining that more intensive testing is warranted. The unexpected findings suggest refinements to the framework, including dominant and prioritized risks and the asymmetry of when risk editing means are applied during planning and execution.

Conclusion

This study conducted a plausibility probe of the constructed risk framework using case study analysis to answer four focused research questions. The study then used the data collected from the case of Operation Neptune's Spear to answer these questions as evidence to test two hypotheses. The research and analysis established the plausibility of the constructed risk framework in describing how commanders edit risk in planning, determining that further testing of the framework is warranted. The study then offered several refinements to the framework, including dominant and prioritized risks, the manageable number of overarching and component risks, the use of dominant and prioritized risks to discard unacceptable risk editing means, the existence of component risks editable by only one risk editing means, and the synergistic and antagonistic interrelation of risks. The findings explained that redundancy in risk editing occurs because intelligence resources are expended during planning while operational capabilities are applied in execution, with redundancy also occurring when intelligence fails to cross 'certainty thresholds.' Analysis of the data supported the hypotheses, answering the overarching research question: how do intelligence and operational capability interact in redundant ways during planning to edit risk in commanders' decisions?

The study makes the following recommendations. First, commanders conceive of the entire planning process as risk management and consider any adjunct risk management processes as accident prevention frameworks or an indication of deficient planning. Second, commanders enumerate overarching and component risks identified in planning. Third, commanders identify any dominant overarching risks and generally prioritize all overarching risks. Fourth, commanders identify any certainty thresholds in their risk decision.⁹⁹ Fifth, planners for specific operational capabilities attempt to explicitly identify risks that are inherently mitigated by these

⁹⁹ This is less daunting than it may at first appear. It is common practice to set "go no-go" criteria for tactical missions, which are effectively risk thresholds.

capabilities, allowing intelligence planners to deprioritize uncertainty reduction regarding such risks. Sixth, planners explicitly identify interrelated risks and potential antagonistic tradeoffs or synergistic options. Explicitly calling these out during planning clarifies the commander's choices in COA selection and refinement.

The first recommendation nests within doctrine's overarching notions of operations and risk and explains widespread dissatisfaction with risk management doctrine, softening any controversy over the fact that it runs counter to risk management doctrine. The other recommendations neither run counter to doctrine nor to common sense. Nevertheless, the recommended explicit communication among commanders and their planners creates a shared understanding of risk while facilitating efficient allocation of risk editing resources in planning by allowing each risk editing means to focus on areas where they are most likely to provide value to the commander's risk decision.

Further research should refine the constructed risk framework and test its hypotheses on an expanded array of cases, including conventional force cases. With this additional validation, future research might also address how to adopt the constructed risk framework and its implications into doctrine. Finally, should further details regarding risk decisions in Operation Neptune's Spear come to light, future research may revisit analysis in this study to determine whether it remains valid.

Risk remains an enduring feature of war. While a definitive guide to account for and edit risk is likely unachievable, practitioners can always hope to improve communication about and conceptions of risk. This study aimed to do just that.

Appendix

To aid in readability, the tables in this appendix appeared in the body of this study without footnotes. This appendix reproduces those tables with complete citations and explanatory footnotes. Table 5 reproduces Table 3 with all footnotes.

Table 5. Risks Identified in Planning (with footnotes)

Overarching Risk	Component Risk
1) The Pacer was not bin Laden	1.1) False-positive from analytic bias ¹⁰⁰ 1.2) Political consequence from action against a false positive ¹⁰¹ 1.3) Inability to prove the Pacer's identity if he were bin Laden ¹⁰²
2) bin Laden would escape before the raid	2.1) Leak tips-off bin Laden ¹⁰³ 2.2) bin Laden moves on his own ¹⁰⁴ 2.3) Pakistani government or rogue Pakistani official tips off bin Laden ¹⁰⁵ 2.4) bin Laden detects aggressive surveillance techniques ¹⁰⁶
3) Failure during insertion and extraction of forces	3.1) Pakistani forces surround the raid force, preventing extraction ¹⁰⁷ 3.2) Pakistani air defense detect or shoot-down the raid force ¹⁰⁸ 3.3) Unexpected fuel consumption forces unplanned refueling in hostile tribal areas ¹⁰⁹ 3.4) Helicopter crashes or malfunctions ¹¹⁰ 3.5) Compound residents shoot down a helicopter on approach ¹¹¹
4) Operations at AC1 fail	4.1) The raid force is unable to clear AC1 ¹¹²

¹⁰⁰ Gates, 539. Sanger, 91-92. Obama, 685.

¹⁰¹ Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 191. Obama, 686.

¹⁰² Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 175. Bowden, *The Finish: The Killing of Osama Bin Laden*, 166, 206. McRaven, 293.

¹⁰³ Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 172-173, 201-202. Obama, 687.

¹⁰⁴ Brennan, *Undaunted: My Fight Against America's Enemies, at Home and Abroad*, 233. Morell and Harlow, 162.

¹⁰⁵ Clinton, 160. Clapper, 151. McRaven, 287.

¹⁰⁶ Bob Woodward, "Trail to Bin Laden Began with One Call," *The Washington Post*, May 7, 2011. Panetta, 297.

¹⁰⁷ McRaven, 302. Bowden, *The Finish: The Killing of Osama Bin Laden*, 168-169.

¹⁰⁸ McRaven, 277, 281. Bowden, *The Finish: The Killing of Osama Bin Laden*, 168.

¹⁰⁹ McRaven, 301, 303. Bowden, *The Finish: The Killing of Osama Bin Laden*, 195.

¹¹⁰ Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 179-180. McRaven, 299. Naylor, 395, 398.

¹¹¹ McRaven, 317-318.

¹¹² Robert O'Neill, *The Operator: Firing the Shots that Killed Osama Bin Laden and my Years as a SEAL Team Warrior* (New York: Scribner, 2017), 287-288. Owen, 174. Tapper, Raddatz, and Hopper.

Overarching Risk	Component Risk
	4.2) AC1 is rigged to explode ¹¹³
	4.3) Compound residents detonate a suicide vest ¹¹⁴
	4.4) bin Laden flees or hunkers-down in a safe room ¹¹⁵
	4.5) Raid force unable to overcome unanticipated risk ¹¹⁶
5) Pakistan's adverse reaction	5.1) Pakistan stops cooperation with US counterterrorism ¹¹⁷
	5.2) Violence breaks out at the embassy and consulates in Pakistan ¹¹⁸
	5.3) Pakistan shuts off land and air logistics routes to or encourages proxies to attack coalition forces in Afghanistan ¹¹⁹
	5.4) A US citizen held by Pakistan is held indefinitely or is otherwise harmed ¹²⁰
6) al-Qaida response	6.1) Future al-Qaida leaders improve security, becoming harder to find ¹²¹
	6.2) al-Qaida mounts attacks in retribution ¹²²
7) Compromised sources, methods, or capabilities reduce future effectiveness	7.1) Sensitive technology compromised ¹²³
	7.2) Sensitive intelligence sources and methods compromised ¹²⁴

Source: Created by author.

Table 6 reproduces Table 4 with complete footnotes.

¹¹³ McRaven, 277.

¹¹⁴ McRaven, 311-312.

¹¹⁵ Morell and Harlow, 159. McRaven, 277. Owen, 171.

¹¹⁶ Bowden, *The Finish: The Killing of Osama Bin Laden*, 153. McRaven, 274.

¹¹⁷ Gates, 540-2.

¹¹⁸ Brennan, *Undaunted: My Fight Against America's Enemies, at Home and Abroad*, 238. Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 206.

¹¹⁹ Brennan, *Undaunted: My Fight Against America's Enemies, at Home and Abroad*, 236. Clinton, 181. Gates, 539.

¹²⁰ Sanger, 84, 87. On January 27, 2011, in Lahore, Pakistan, two Pakistanis attacked Ray Davis, a US citizen, who killed them in the encounter. Davis was by some accounts a security officer, by others a CIA contractor. Pakistan held Davis, accusing him of being a CIA spy, and an incensed Pakistani public clamored for his execution. Panetta, 304-305.

¹²¹ John Rollins et al., *Osama bin Laden's Death: Implications and Considerations* (Washington, DC: Congressional Research Service, 2011), 3.

¹²² Brennan, *Undaunted: My Fight Against America's Enemies, at Home and Abroad*, 238. Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 206.

¹²³ Naylor, 401. Tyler Rogoway, "Origins of Stealth Black Hawks Date Back Over Three Decades Before the Bin Laden Raid," *The War Zone*, January 10, 2019, <https://www.thedrive.com/the-war-zone/25890/origins-of-stealth-black-hawks-date-back-over-33-years-before-the-bin-laden-raid>.

¹²⁴ John O. Brennan, "Press Briefing by Press Secretary Jay Carney and Assistant to the President for Homeland Security and Counterterrorism John Brennan, 5/2/2011," *The White House*, May 02, 2011, <https://obamawhitehouse.archives.gov/the-press-office/2011/05/02/press-briefing-press-secretary-jay-carney-and-assistant-president-homela>.

Table 6. Risk Editing Means Applied in Planning (with footnotes)

Subordinate Risk	Uncertainty Reduction	Operational Capability
1.1	Extraordinary intelligence collection ¹²⁵ Multiple analyst opinions, red team analysis ¹²⁶	
1.2	Red-team analysis ¹²⁷	
1.3	Local vaccine drive to collect and DNA-test needles ¹²⁸ Shadow height analysis ¹²⁹	Capture the Pacer ¹³⁰ Facial recognition of body ¹³¹ DNA test body ¹³²
2.1		Extreme compartmentalization ¹³³ CIA-only planning at first ¹³⁴ Mission execution ¹³⁵ Covert action authorities ¹³⁶ Not involving Pakistan ¹³⁷
2.2		Mission execution ¹³⁸
2.3		Not involving Pakistan ¹³⁹

¹²⁵ Panetta, 294. McRaven, 274.

¹²⁶ McRaven, 305. Obama, 685. Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 194, 196.

¹²⁷ Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 191. Bergen relates that Leiter advised Brennan that if the Pacer were not bin Laden and a failed raid became public, a red team analysis would show the administration had done its due diligence and not repeated the mistakes of Iraq weapons of mass destruction.

¹²⁸ Bowden, *The Finish: The Killing of Osama Bin Laden*, 154.

¹²⁹ Panetta, 296. This analysis measured the length of the Pacer's shadow to estimate height. Because of uncertain reference measurements (e.g., the thickness of nearby walls), this estimate was only narrowed to 5'8"-6'8", which was useless except for confirming that it couldn't not be a 6'4" bin Laden. Woodward, "Trail to Bin Laden Began with One Call."

¹³⁰ Clinton, 180.

¹³¹ Bowden, *The Finish: The Killing of Osama Bin Laden*, 235.

¹³² Obama, 696.

¹³³ Morell and Harlow, 150.

¹³⁴ Morell and Harlow, 153.

¹³⁵ Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 172-173, 201-202.

¹³⁶ Anthony Hale, "Dimensions of Uncertainty in Presidential Decision-Making Involving the Use of Force," (civilian research project, US Army War College, 2012), 30.

¹³⁷ Clapper, 152.

¹³⁸ Morell and Harlow, 162. Brennan, *Undaunted: My Fight Against America's Enemies, at Home and Abroad*, 233.

¹³⁹ McRaven, 287. Brennan, *Undaunted: My Fight Against America's Enemies, at Home and Abroad*, 234.

Subordinate Risk	Uncertainty Reduction	Operational Capability
2.4	Abstain from aggressive surveillance ¹⁴⁰ Increase less detectable surveillance ¹⁴¹	
3.1	Assess Pakistani reaction time ¹⁴² Real-time communications monitoring ¹⁴³	Time-limited mission ¹⁴⁴ Kala Dhaka QRF ¹⁴⁵ Afghanistan QRF and “Gorilla package” ¹⁴⁶ Translator to assuage locals ¹⁴⁷ Moonless night ¹⁴⁸ Five-person cordon force ¹⁴⁹ Paused NSA system upgrades ¹⁵⁰ Cherry-picked team
3.2	Rehearsed against simulated Pakistani radars ¹⁵¹	Stealth H-60s ¹⁵⁴ Terrain- and acoustic-masked holding area for MH-47s ¹⁵⁵ Kala Dhaka MH-47s 30 minutes in trail ¹⁵⁶

¹⁴⁰ Panetta, 297. Woodward, “Trail to Bin Laden Began with One Call.”

¹⁴¹ Owen, 193. Miller, “Stealth Drones Kept Watch Over Bin Laden Home.” Craig Whitlock and Barton Gellman, “Document Sheds Light on Raid that Killed Bin Laden.” *The Washington Post*, August 30, 2013.

¹⁴² McRaven, 302. Undersecretary of Defense for Intelligence, *Transcript from background interview with Marl Boal and Katherine Bigelow (15 Jul 2011)*, (Washington, DC, July 15, 2011): 12-13. <https://nsarchive2.gwu.edu/NSAEBB/NSAEBB410/docs/Vickerstranscript.pdf>. The sources do not discuss what intelligence measures were applied to arrive at the estimate that Pakistani forces would not respond in less than 30 minutes, but they are clear this estimate was based off robust intelligence.

¹⁴³ Bowden, *The Finish: The Killing of Osama Bin Laden*, 168-169. Garrett M. Graff, “I’d Never Been Involved in Anything as Secret as This’,” *Politico*, 04/30/2021, <https://www.politico.com/news/magazine/2021/04/30/osama-bin-laden-death-white-house-oral-history-484793>. McRaven, 295, 322.

¹⁴⁴ McRaven, 295.

¹⁴⁵ Bowden, *The Finish: The Killing of Osama Bin Laden*, 168-169. Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 216.

¹⁴⁶ McRaven, 306, 323. Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 216.

¹⁴⁷ McRaven, 302.

¹⁴⁸ Brennan, *Undaunted: My Fight Against America’s Enemies, at Home and Abroad*, 233-234. Bowden, *The Finish: The Killing of Osama Bin Laden*, 184-185, 199.

¹⁴⁹ Owen, 167.

¹⁵⁰ Graff.

¹⁵¹ McRaven, 300.

¹⁵⁴ McRaven, 288. Bowden, *The Finish: The Killing of Osama Bin Laden*, 168.

¹⁵⁵ McRaven, 318. By placing the QRF and refueling holding area in an unpopulated valley, terrain would mask the un-stealthy MH-47s from both acoustic and radar detection.

¹⁵⁶ McRaven, 317. This ensured the MH-47s were close enough to be responsive to any contingency but would delay potential radar detection by at least thirty minutes.

Subordinate Risk	Uncertainty Reduction	Operational Capability
	Estimate of Pakistani air force capability to engage helicopters at night ¹⁵² Real-time communications/air picture monitoring ¹⁵³	Paused NSA system upgrades ¹⁵⁷ Moonless night ¹⁵⁸ Early-summer mission execution ¹⁵⁹ Helicopter electronic countermeasures ¹⁶⁰ “Gorilla package” with fighters and jamming aircraft ¹⁶¹ Stealth RQ-170 surveillance ¹⁶²
3.3	Temperature/wind estimate ¹⁶³ Rehearsals at mission temperature, altitude, distance ¹⁶⁴	Limited time at AC1 ¹⁶⁵ Refueling at Kala Dhaka ¹⁶⁶
3.4		Identical ground force composition on each helicopter ¹⁶⁷ Downed helicopter drills ¹⁶⁸ QRF recovery ¹⁶⁹
3.5	Measured acoustic detection during rehearsals ¹⁷⁰	Acoustically-dampened H-60s ¹⁷¹

¹⁵² Naylor, 398. Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 226.

¹⁵³ Bowden, *The Finish: The Killing of Osama Bin Laden*, 168-169. Graff. McRaven, 295, 322. Naylor, 401. Undersecretary of Defense for Intelligence, *Transcript from background interview with Marl Boal and Katherine Bigelow (15 Jul 2011)*, 12-13.

¹⁵⁷ Graff.

¹⁵⁸ Brennan, *Undaunted: My Fight Against America’s Enemies, at Home and Abroad*, 233-234. Bowden, *The Finish: The Killing of Osama Bin Laden*, 184-185, 199.

¹⁵⁹ Bowden, *The Finish: The Killing of Osama Bin Laden*, 184-185, 199. Execution later into the summer would have required additional helicopters. Because there were only two stealth H-60s in the US inventory, this would necessitate adding non-stealthy helicopters to the insert at AC1, increasing the chance of detection and engagement by Pakistani air defenses. Bowden, *The Finish: The Killing of Osama Bin Laden*, 168. Naylor, 395.

¹⁶⁰ Quade.

¹⁶¹ McRaven, 323.

¹⁶² Miller, “Stealth Drones Kept Watch Over Bin Laden Home.”

¹⁶³ McRaven, 301.

¹⁶⁴ Bowden, *The Finish: The Killing of Osama Bin Laden*, 195. McRaven, 303.

¹⁶⁵ McRaven, 288.

¹⁶⁶ McRaven, 303. Bowden, *The Finish: The Killing of Osama Bin Laden*, 168.

¹⁶⁷ Owen, 158.

¹⁶⁸ Naylor, 397.

¹⁶⁹ McRaven, 299.

¹⁷⁰ Clinton, 183. Panetta, 314.

¹⁷¹ Rogoway.

Subordinate Risk	Uncertainty Reduction	Operational Capability
		Adjusted helicopter approach to reduce acoustic detection from 120 to 60 seconds ¹⁷² Snipers in helicopter doors ¹⁷³
4.1	Exquisite intelligence on exterior layout ¹⁷⁴	Tactics agnostic to interior layout and experience with countless variations ¹⁷⁵ Hyper-realistic mock-ups ¹⁷⁶
4.2	Pattern of life for Pakistani military helicopters ¹⁷⁷	Explosive ordnance disposal technicians ¹⁷⁸ Acoustically-dampened H-60s ¹⁷⁹ Adjusted helicopter approach to reduce acoustic detection from 120 to 60 seconds ¹⁸⁰
4.3		Self-defense rules of engagement ¹⁸¹
4.4	Water table estimate ¹⁸²	Raid, not glide bomb ¹⁸³ Bunker-busting bombs to penetrate thirty feet underground ¹⁸⁴

¹⁷² Clinton, 183. Panetta, 314.

¹⁷³ McRaven, 317-318. Owen, 4-5.

¹⁷⁴ Owen, *No Easy Day: The Firsthand Account of the Mission that Killed Osama bin Laden* 170. This even included whether doors opened in or out.

¹⁷⁵ O'Neill, 287-288. Owen, 174.

¹⁷⁶ Owen, 174. Owen recalls that any requested modifications to the mock-ups during rehearsals were made immediately, "The construction crew didn't ask why and never said no. They just showed up and made all the requested changes. We'd never been treated like this. All of the bureaucracy was gone. If we needed something, we got it. No questions asked." Owen, 174.

¹⁷⁷ Panetta, 300. Surveillance, observed Pakistani helicopters flying over AC1 without any reaction from the residents, indicating the residents were desensitized to at least distant daytime helicopter sounds. Panetta, 300.

¹⁷⁸ Owen, 242.

¹⁷⁹ Rogoway.

¹⁸⁰ Clinton, 183. Panetta, 314.

¹⁸¹ McRaven, 311-312. Some sources speculate the SEALs were ordered to kill bin Laden on sight. McRaven clarifies that while the team was ordered to capture bin Laden if possible, the nature of the target and the mission always made this unlikely, "Unless bin Laden was in his underwear with his hands in the air, then it was possible he was wearing an explosive vest and was therefore a threat to the force." McRaven, 311-312.

¹⁸² Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 175. The National Geospatial-Intelligence Agency estimated the water table to be quite high in Abbottabad due to enduring puddles of water following rain storms. This made the construction of a covert escape tunnel highly unlikely—although intelligence could not rule the possibility out. Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 175.

¹⁸³ Morell and Harlow, 159.

¹⁸⁴ Owen, 171. Panetta, 309. McRaven, 277. COA 1 was the only COA that eliminated any chance of the Pacer's flight given the lack of any audible alarm and the complete destruction of the area.

Subordinate Risk	Uncertainty Reduction	Operational Capability
		Military working dog ¹⁸⁵
4.5		SEALs' extensive raid experience ¹⁸⁶
		Military working dog ¹⁸⁷
5.1		Proof of bin Laden's identity
		Proof of bin Laden's identity
5.2	Estimate of Pakistani reaction ¹⁸⁸	Security plan for diplomatic facilities ¹⁸⁹
		US Consulate in Peshawar evacuated ¹⁹⁰
5.3		Proof of bin Laden's identity
		Strengthen Northern Distribution Network ¹⁹¹
5.4		Proof of bin Laden's identity
		Efforts to secure release before the raid ¹⁹²
6.1	Estimate of al-Qaida reaction ¹⁹³	Collection and exploitation of intelligence material at AC1 ¹⁹⁴
6.2		Security plan for diplomatic facilities ¹⁹⁵
		US Consulate in Peshawar evacuated ¹⁹⁶
7.1	Review and approval process ¹⁹⁷	Explosives to destroy a crashed helicopter ¹⁹⁸

¹⁸⁵ Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 222. Among other skills, the dog was trained to sniff out concealed hiding spots.

¹⁸⁶ Bowden, *The Finish: The Killing of Osama Bin Laden*, 153. McRaven, 271, 274.

¹⁸⁷ Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 222.

¹⁸⁸ Brennan, *Undaunted: My Fight Against America's Enemies, at Home and Abroad*, 237.

¹⁸⁹ Brennan, *Undaunted: My Fight Against America's Enemies, at Home and Abroad*, 238.

¹⁹⁰ Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 206.

¹⁹¹ Graff. Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 172. The Northern Distribution Network was a supply route into Afghanistan from Central Asian states to the north. On Friday, April 29th, Denis McDonough, Deputy National Security Advisor, told Mike McFaul, the National Security Council's senior director in charge of Russia and Central Asia, to call the President of Kazakhstan and enhance the Northern Distribution Network. Graff.

¹⁹² Panetta, 305-306, 309-310. Sanger, 87. Pakistan released Davis on March 16, 2011, two days after planning began in earnest. No source explicitly links these two events, but it is possible that his release was all but secured by the March 14, 2011 National Security Council meeting, partially explaining the willingness to accelerate planning.

¹⁹³ Brennan, *Undaunted: My Fight Against America's Enemies, at Home and Abroad*, 237.

¹⁹⁴ Bowden, *The Finish: The Killing of Osama Bin Laden*, 207.

¹⁹⁵ Brennan, *Undaunted: My Fight Against America's Enemies, at Home and Abroad*, 238.

¹⁹⁶ Bergen, *Manhunt: The Ten-Year Search for Bin Laden from 9/11 to Abbottabad*, 206.

¹⁹⁷ No source mentions this procedure, although it is a standard process to weigh the risk/reward of actions that might expose sensitive capabilities or technologies and foreclose their future utility.

¹⁹⁸ Naylor, 401.

Subordinate Risk	Uncertainty Reduction	Operational Capability
7.2	Intelligence gain/loss estimate ¹⁹⁹	Extreme compartmentalization ²⁰⁰ Covert action authorities ²⁰¹

Source: Created by author.

¹⁹⁹ Brennan, “Press Briefing by Press Secretary Jay Carney and Assistant to the President for Homeland Security and Counterterrorism John Brennan, 5/2/2011.” Although the sources do not mention this procedure by name, an intelligence gain/loss estimate is a standard process to weigh the risk/reward of actions that might expose sensitive sources and methods and foreclose their future utility. Brennan explained, “you want to make sure that you’re not doing anything to expose something that will limit your ability to use those same intelligence sources and capabilities in the future.” Brennan, “Press Briefing by Press Secretary Jay Carney and Assistant to the President for Homeland Security and Counterterrorism John Brennan, 5/2/2011.”

²⁰⁰ Morell and Harlow, 150.

²⁰¹ Hale, 30.

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