



**BLENDING SCIENCE & ART: COLD WAR LESSONS FOR STRATEGY
DEVELOPMENT IN POSTMODERN WAR**

BY

SHANON ANDERSON, MAJ, USAF

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DISCLAIMER

The conclusions and opinions expressed in this document are those of the author. They do not reflect the official position of the US Government, Department of Defense, the United States Air Force, or Air University.

ABOUT THE AUTHOR

Major Shanon Anderson was a 1999 graduate of the USAF Academy, where he majored in Biology. He earned an MBA from Trident University in 2008 and a Master of Science in Logistics from the Air Force Institute of Technology in 2012. His 14-year career on active duty with the Air Force has taken him to a variety of assignments piloting KC-10, T-6, and C-17 aircraft. His most recent assignment was Chief, Wing Plans for the 305th Air Mobility Wing at Joint Base McGuire-Dix-Lakehurst, NJ.

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ABSTRACT

This study explores new horizons in the theory of strategy. In studying existing theory, it doesn't take long to discover the fact that few theories offer any universal prescriptive utility, and the few that do are at best only slightly useful. Further complicating matters, many popular theorists such as Clausewitz suggest that any attempt to develop strategy from a prescriptive or scientific approach is dangerous. As contemporary military strategists attack new domains, what does existing theory really offer other than laundry lists of principles that may or may not be relevant?

However, Robert Jervis was on to something in his exploration of the role of perceptions, the human psyche, and their role in international politics. But he leaves us hanging with notions of never being able to understand this...but can we deliberately try? Without falling into the overly scientific and prescriptive Fuller category, can we systematically seek to avoid pitfalls, or at least make sure our strategies don't ignore lessons of history and relevant theories? Today, strategists are left grasping at Clausewitz' vague description of the "divined" military genius as they strive to achieve Sun Tzu's supremely important task to "attack the enemy's strategy."

This study tests a hypothesis that we can build a prescriptive model for strategy development by accounting for the objective attributes of strategy development. It emphasizes paradigmatic and perceptual concepts as presented by Kuhn and Jervis. Chapter 1 presents a test model that incorporates many foundational theories on military employment, war and international relations into a single Rational Actor Model (RAM) with focus on deliberate management of Paradigms, Perceptions and Interpretation of new information (PPI) at each step.

A RAM infused with traditional theory and focused on deliberate management of PPI is presented in Chapter 1. Chapters 2 and 3 then test its explanatory utility through analyses of the Berlin and Cuban Crises of the Cold War. Then Chapter 4 explores its prescriptive utility in the development of better cyber strategy for today. If proven useful, clearly the model could be utilized as a starting point for military strategists in the development of any new strategy. However, potentially more useful is the more comprehensive approach to military strategy that accounts for the interplay of all instruments of national power.

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INTRODUCTION

Nearly 50 years ago, military theorist B.H. Liddell Hart provided definitions of grand and military strategy still commonly accepted today: “[Strategy is] the *art* of distributing and applying military means to fulfill the ends of policy...Grand strategy is [the coordination and direction of] all the resources of a nation, or band of nations, toward the attainment of the political object of the war – the goal defined by fundamental policy...[Grand strategy] should take account of and apply the power of financial pressure, of diplomatic pressure, of commercial pressure, and not least of ethical pressure, to weaken the opponent’s will.”¹ The common thread among Liddell Hart, Carl von Clausewitz, and other theorists is the acceptance of strategy as an *art* that cannot be prescribed using science, because strategic calculations rely on the immeasurable capacity of human genius and will.² Art, in this context, is a *skill* acquired through personal experience and the study of history and existing theories. This skill essentially involves the synthesis of all these ideas into a personal definition and theory of war, specific to a certain timeframe and context.³ As contemporary US strategists struggle to do this today within an ever-changing international environment, a look back at similarly inauspicious times might provide a good starting point.

The Berlin Crisis of 1948 and Cuban Missile Crisis of 1962 presented the US and Soviet Union with dynamic and challenging circumstances, and forced them to confront many strategic variables of relatively unknown importance. Each nation devised strategies that ultimately determined the crises’ outcomes. In the midst of a seemingly overwhelming blend of variables at play, the artistic nature of strategy development was clear. However, the complexity also suggests that an anti-Clausewitzian scientific approach to rationally deal with these variables might prove useful.

During the Berlin Crisis, the Western Allies’ use of airlift as a nonlethal form of airpower forced a determined Stalin to capitulate before Western cost and duration limits were reached. Key paradigmatic and perceptual variables, such as Stalin’s estimation of

1. Liddell Hart, B.H., *Strategy*, (New York: Penguin, 2nd rev. ed. 1967, reprint, 1991), 322.

2. Hart, *Strategy*, 323.

3. Winton, Harold R., “An Imperfect Jewel: Military Theory and the Military Profession”, *The Journal of Strategic Studies*, 34 (December 2011), 853-77.

the Western Allies' capabilities and U.S.'s estimation of the importance of West Berliners' resolve, proved to be key determinants of the crisis' outcome. Accordingly, the lingering question is *how* the US and Western Allies got it right and Stalin got it wrong.

Similarly, the Cuban Missile Crisis presented the US and Soviet Union with a conflict of unprecedented criticality. Thermonuclear war threatened cataclysm while leaders of each nation carefully constructed strategies to achieve national goals while preserving the existence of their nations. Again, key paradigmatic and perceptual variables played a pivotal role, such as Khrushchev's estimation of the significance of Jupiter missiles in Turkey and Kennedy's estimation of the reasoning behind Khrushchev's seemingly reckless behavior. Ultimately, the US was able to devise a strategy to end the crisis as the apparent victor. Like the Berlin Crisis, the same question still remains: *how* was the US able to develop a more effective strategy? In answering these questions, the utility of a scientific approach to strategy development again surfaces. Careful and deliberate management of paradigmatic and perceptual variables would have been useful to all actors in both conflicts.

This research will analyze these historical examples to explore the utility of another scientific approach to the art of strategy development. Can deliberate attention to inaccurate paradigms, misperceptions, and misinterpretations of information offer a prescriptive, modern approach to strategy development? Chapter 1 proposes a theoretical model to test such a hypothesis. It utilizes a focus on paradigms, perceptions and interpretation of information (PPI) to synthesize many established theories on international relations, decision-making, and war into a single Rational Actor Model (RAM). Chapters 2 and 3 then discern the explanatory utility of the model using the Berlin and Cuban Missile Crises. Finally, with explanatory utility established, Chapter 4 explores the utility of a more scientific and prescriptive use of the model for current and future strategy development.

CHAPTER 1

A Theoretical PPI-Focused RAM

As military strategists attempt to balance facts and theory to identify optimum courses of action, their vision is often clouded by a natural desire for cognitive consistency. This desire is neither rational nor irrational and is necessary to efficiently and effectively process information. However, the way in which strategists understand and address cognitive consistency *is* either rational or irrational. When it is irrational, strategists are more likely to subconsciously neglect or distort new information to maintain inaccurate paradigms and support previously accepted perceptions or historical analogies.

In his book *The Air War 1939-1945*, Richard Overy states, “History is the harshest judge of yesterday’s errors and the sternest critic of man’s unfailing propensity to see things as other than they are.”¹ Military leaders have attempted to address this problem with new models and new teams of strategists. However, the fundamental answer might lie in deliberate management of Paradigms, Perceptions and Interpretation of information (PPI). Ignorance of PPI concepts, common problems, and associated avoidance strategies has driven the invention of new theories and models aimed at catching common decision-making errors that the RAM missed due to its inherent bounded rationality. Accordingly, a PPI-focused RAM is presented below to demonstrate how the traditional RAM, with more comprehensive rationality, can expand to incorporate insights gleaned from other models and overcome common PPI decision-making pitfalls.

A PPI-Focused Model for Rational Strategy Development

This model’s foundation is the prescriptive decision-making RAM offered by Allison and Zelikow in their 1999 book, *Essence of Decision: Explaining the Cuban Missile Crisis*. Allison and Zelikow presented three complementary models: a RAM, an organizational behavior model, and a governmental politics model. The RAM model’s outline for an ad hoc working synthesis is presented in Figure 1 below.

1. Overy, R. J., *The Air War, 1939-1945*, (Washington, D.C.: Potomac Books, Inc., 2005), xiv.

- What are the objective (or perceived) circumstances that the state conceives as threats and opportunities?
- What are the state's goals (survival, power)?
- What are the objective (or perceived) options for addressing this issue?
- What are the objective (or perceived) strategic costs and benefits of each option?
- What is the state's best choice given these conditions?

Figure 1. Allison and Zelikow's RAM

Source: Allison, Graham T, and Philip Zelikow. *Essence of Decision: Explaining the Cuban Missile Crisis*. (New York [etc.]: Longman, 1999), 389-390.

Allison and Zelikow thoroughly admit the limitations of the RAM and the need for additional models. They provide models on organizational behavior and governmental politics to explain RAM anomalies and to improve its explanatory power.² They mention Jervis' insight on perceptions, but still cite knowledge and computational ability as the reason comprehensive rationality is uncommon and bounded rationality is more common.³ However, they form organizational behavior and governmental politics models simply because of a perceived irrationality caused by common misperceptions. The model presented below in Figure 2 eliminates the need for additional models and embeds Allison and Zelikow's additional models by helping to ensure that perceptual concerns are not irrationally neglected during the decision-making process.

Likewise, concepts gleaned from other theories can be embedded within the PPI-focused RAM. Improved PPI will enable more rationality, inclusion of other models, and solutions to common decision-making pitfalls. To demonstrate this approach, figure 2 below presents a modified version of Allison and Zelikow's RAM outline infused with such focus, additional theoretical concepts, and pitfall avoidance strategies.

2. Allison and Zelikow, *Essence of Decision*, 13-54.

3. Allison and Zelikow, *Essence of Decision*, 20.

- What circumstances does each actor involved *perceive* as threats and opportunities?
 - Consider accuracy of existing strategic paradigms (Note 1)
 - Evaluate all possible cultural, cognitive & ego psychology *perceptions* at play (Note 2)
 - Accuracy of *perceptions* driving enemy threats
 - Accuracy of *perceptions* driving our opportunities
 - *Perceived* prevalence of balance-of-power politics (Note 3)
 - *Perceived* importance of relative versus absolute gains (Note 4)
 - *Perceived* role of regionalism and globalization (Note 5)
 - *Perceived* physical, mental and moral Centers of Gravity (COGs) (Note 6)
 - *Perceived* threats and opportunities introduced by new technologies (Note 7)
 - Accuracy of our *perceptions* of enemy *perceptions* and vice versa (Note 8)
 - Level of communication with enemy and *perceived* deception (Note 9)
 - Deliberate avoidance of common misperceptions and groupthink (Note 10)
- What are each actor's established/*perceived* goals
 - Survival or power-oriented grand strategy? (Note 11)
 - Coercion or brute force? (Note 12)

Figure 2. PPI-Focused RAM

Source: Adapted RAM from Theories as Noted:

Note 1. Kuhn, Thomas S, *The Structure of Scientific Revolutions*, (Chicago: The University of Chicago Press, 1962), entire.

Note 2. Jervis, Robert, *Perception and Misperception in International Politics*, (Princeton, N.J.: Princeton University Press, 1976), entire.

Note 3. Waltz, Kenneth Neal, *Man, the State, and War : a Theoretical Analysis*, (New York: Columbia University Press, 2001), xi; Gilpin, Robert, *War and Change in World Politics*, (Princeton, NJ: Princeton University Press, 1981), 28, 34, 92; Bull, Hedley, *The Anarchical Society*, (New York: Columbia University Press, 1977), 97, 102.

Note 4. Waltz, *Man, the State, and War*, xi.

Note 5. Dicken, Peter, *Global Shift* (Hagerstown, MD: Harper & Row, 1986), 553; Buzan, Barry and Ole Wæver, *Regions and Powers: The Structure of International Security*, (Cambridge: Cambridge University Press, 2003), 27.

Note 6. Clausewitz, Carl, *On War*, trans. and ed. Michael Howard and Peter Paret, (Princeton: Princeton University Press, 1984), 596; Olsen, John A., *John Warden and the Renaissance of American Air Power*, (Herndon, VA: Potomac Books, 2007), 224; Pape, Robert, *Bombing to Win*, (New York: Cornell University Press, 1996), 9; Osinga, Frans P.B., *Science, Strategy and War; The strategic theory of John Boyd*, (New York: Routledge, 2007), 32.

Note 7. Kurzweil, Ray, *The Age of Spiritual Machines: When Computers Exceed Human Intelligence*, (New York: Viking, 1999), 17.

Note 8. Tzu, Sun, *The Illustrated Art of War; The definitive English Translation by Samuel B. Griffith*, (New York: Oxford University Press 2005), 118.

Note 9. Tzu, *The Illustrated Art of War*, 118. Bousquet, Antoine, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity*, (New York: Columbia University Press, 2009), 105. (Shannon and Weaver communication model).

Note 10. Jervis, *Perception and Misperception in International Politics*, 423; Janis, Irving, *Groupthink: Psychological Studies of Policy Decisions and Fiascoes*, (Second Edition, New York: Houghton Mifflin, 1982), 262-276.

Note 11. Murray, Williamson, Richard Hart Sinnreich, and James Lacey, eds, *The Shaping of Grand Strategy: Policy, Diplomacy, and War*, (Cambridge: Cambridge University Press, 2011), 33.

Note 12. Schelling, Thomas, *Arms and Influence*, (New Haven: Yale University Press, 1966), 5-7.

- What are each actor's *perceived* options (instruments of power) for addressing the issue?
 - Perceived legal, ethical and political limitations (Note 13)
 - Allison & Zelikow Model II—organizational behavior implications/*perceptions* (Note 14)
 - Perceived organizational character (Note 15)
 - *Perceived* political-military and interagency coordination (Note 16)
 - Allison and Zelikow Model III—governmental politics implications/*perceptions* (Note 17)
 - *Perceived* societal/governmental desires for cognitive consistency (Note 18)
 - *Perceived* chance of military leadership shirking (Note 19)
 - Implications/*Perceptions* of Waltz human nature image (Note 20)
 - Machiavellian Fundamentalists or Locke/Bentham Institutionalists? (Note 21)
 - Implications/*Perceptions* of Waltz structure of state image (Note 22)
 - Rousseauian Constitutionalists or Smith/Schumpeter Commercialists? (Note 23)
 - Implications/*Perceptions* of Waltz anarchic international environment image (Note 24)
 - Hobbesian structuralism, Kantian Internationalism, or Wendt Constructivism? (Note 25)
- What are each actor's *perceived* strategic costs and benefits of each option?
 - Economic principals to rationalize—*perceived* opportunity costs, contracts, cost/benefit analysis, information asymmetry, marginal returns, substitution (Note 26)
 - Consider missing information, OODA speed and perception confidence intervals (Note 27)
- What is each actor's *perceived* best choice given these conditions?
 - Goals + perceptions + calculus [Bp(B) – Cp(C)] = policy & decisions (Note 28)

Figure 2. PPI-Focused RAM (continued)

Source: Adapted RAM from Theories as Noted:

Note 13. Walzer, Michael, *Just and Unjust Wars: A Moral Argument with Historical Illustrations*, (New York: Basic Books, 2006), 21.

Note 14. Allison and Zelikow, *Essence of Decision*, 390.

Note 15. Morgan, Gareth, *Images of Organizations*, (New York: SAGE Publications, 2006), 365.

Note 16. Feaver, Peter, *Armed Servants: Agency, Oversight, and Civil-military Relations*, (Cambridge, Mass.: Harvard University Press, 2005), 3; Allison and Zelikow, *Essence of Decision*, 390.

Note 17. Allison and Zelikow, *Essence of Decision*, 390.

Note 18. Jervis, *Perception and Misperception in International Politics*, 112.

Note 19. Feaver, *Armed Servants*, 3.

Note 20. Waltz, *Man, the State, and War*, x.

Note 21. Doyle, Michael, *Ways of War and Peace*, (New York: Norton, 1997), 198, 302.

Note 22. Waltz, *Man, the State, and War*, x.

Note 23. Doyle, Michael, *Ways of War and Peace*, 198, 302.

Note 24. Waltz, *Man, the State, and War*, x.

Note 25. Doyle, Michael, *Ways of War and Peace*, 198, 302; Wendt, Alexander, *Social Theory of International Politics*, (Cambridge: Cambridge University Press, 1999), 135-7.

Note 26. Brauer, Jurgen and Hubert Van Tuyl, *Castles, Battles, and Bombs: How Economics Explains Military History*, (Chicago, Ill.: University of Chicago Press, 2008), xvii.

Note 27. Osinga, *Science, Strategy and War*, (Boyd's Observe-Orient-Decide-Act model), 96.

Note 28. Jervis, *Perception and Misperception in International Politics*, 31.

As every occurrence of the word “perceived” implies application of PPI understanding, implications and avoidance strategies, it is important to further explicate *PPI focus* before describing each step within the improved RAM.

Paradigms, Perceptions & Interpretation of Information (PPI)

When a strategist approaches a problem using a RAM, existing paradigms, perceptions and ways of interpreting information generate ostensible threats, opportunities, goals, options, costs, benefits and what appears to be a rational decision.⁴ However, throughout history many such decisions have proved erroneous.⁵ The error is sometimes tracked to misaligned goals or flawed calculations in the decision-making process.⁶ However, the effect of flawed PPI corrupting a strategist's application of the RAM is often a contributory or primary cause.⁷ The next three subsections describe key PPI concepts, common problems, and associated avoidance strategies to serve as the cornerstones of a new model for rational strategy development.

Paradigms. In his 1962 book, *The Structure of Scientific Revolutions*, Thomas Kuhn coined the *paradigm* concept. He defines paradigms in two senses. First, a paradigm can be considered the entire set of sociological beliefs, values and techniques shared within a community of practice.⁸ Second, a paradigm can be considered an exemplary past achievement within a community that acts as a springboard for the solution of other related problems.⁹ Paradigms, especially in the first sense, are incommensurable and noncumulative with competing paradigms, and only change as a result of what Kuhn calls a *scientific revolution*.¹⁰

Since publication, many other career fields outside scientific history have acknowledged the existence of paradigms. Not surprisingly, military strategy is no different. Paradigms and associated Kuhnian concepts help explain many misperceptions when developing military strategy. Common beliefs, values and techniques undoubtedly affect how the strategist approaches a problem. The paradigm guides how the strategist perceives new information and conducts normal strategy making. Normal strategy making, like normal science described by Kuhn, is strategy development focused only on the articulation of phenomena and theories that the guiding strategic paradigm already

4. Allison and Zelikow, *Essence of Decision*, 4.

5. Allison and Zelikow, *Essence of Decision*, 77.

6. Jervis, *Perception and Misperception in International Politics*, 31.

7. Jervis, *Perception and Misperception in International Politics*, 31.

8. Kuhn, *The Structure of Scientific Revolutions*, 175.

9. Kuhn, *The Structure of Scientific Revolutions*, 175.

10. Kuhn, *The Structure of Scientific Revolutions*, 102.

supplies.¹¹ As in scientific revolutions, a crisis, sometimes caused by an overwhelming number of anomalies, is required to force a strategist to reevaluate beliefs, values and techniques against new paradigms. Unfortunately, this often occurs too late in the strategy development process to yield positive results.

Kuhn's discussion of scientific paradigms differs from strategic paradigms in two significant ways. Scientific paradigms exist within a single community of practice, while multiple states in the international system may employ different paradigms. Therefore, a strategist must consider other states' paradigms and associated mutual perceptions. As Jurgen Brauer and Hubert Van Tuyll illustrate in their book, *Castles, Battles and Bombs*, military deception and information asymmetry further complicate this task.¹² The second difference between strategic and scientific paradigms is the time factor. Scientific revolutions are not generally time constrained. They generally just run their course as two or more paradigms compete and one wins out. A military strategist may have very little time to succeed in the event of a new paradigm's emergence.

A military strategist's equivalent of a scientific revolution occurred during the Cuban Missile Crisis. The cause of the crisis was likely that both countries misperceived the other's initial strategic paradigms relative to Cuba.¹³ Then, during the crisis, both countries had to rapidly develop new strategic paradigms to resolve the conflict.¹⁴ As a successful strategist would have managed to avoid the crisis altogether, the implication is that a strategist needs to somehow understand an adversary's strategic paradigms and reduce the need for such traumatic strategic revolutions.

In 1999, Graham Allison and Philip Zelikow provided one technique for doing so in their book, *Essence of Decision*. They suggest avoiding the adverse effects of paradigms during decision making by clarifying the *snapshot* phenomenon that is being predicted, and then working backwards to clarify all possible circumstances that could cause the phenomenon.¹⁵ This approach prevents the strategist from starting with an outdated or inappropriate paradigm while trying to predict the likelihood of a future event. The strategist must understand and continually challenge existing paradigms

11. Kuhn, *The Structure of Scientific Revolutions*, 24.

12. Brauer and Van Tuyll, *Castles, Battles, and Bombs*, 160.

13. Allison and Zelikow, *Essence of Decision*, 81.

14. Allison and Zelikow, *Essence of Decision*, 111.

15. Allison and Zelikow, *Essence of Decision*, 388.

during the course of normal strategy making, challenge current perceptions of adversaries' paradigms, make a deliberate effort to take associated anomalies seriously, and attempt to prevent new information from being perceived a particular way by default. The following cognitive approach to understanding perceptions expands upon the latter.

Perceptions. Robert Jervis provided a useful cognitive approach for understanding important aspects of perceptions and misperceptions in his 1976 book *Perception and Misperception in International Politics*. According to Jervis, perception and misperception in international politics, decision making and strategy development have not adequately been addressed by psychology or international relations specialists.¹⁶ Accordingly, decision makers and strategists generally lack a true understanding of misperception and its frequency of occurrence, causes, types, and implications.¹⁷ This is problematic for decision makers because perceptual challenges are more difficult than those associated with setting goals or performing calculations.¹⁸

Jervis used deterrence theory and the spiral model, two dominant models for explaining the Cold War, to demonstrate how the effects of a state's actions and policies ultimately depend on other states' perceptions of intent.¹⁹ As such, policy makers and strategists should determine what adversary behavior they would consider as evidence contrary to perceptions currently held.²⁰ Such thinking is not common in strategic decision-making for reasons provided by Jervis' discussion of rational and irrational cognitive consistency. Cognitive consistency is the natural "strong tendency for people to see what they expect to see and to assimilate incoming information to pre-existing images."²¹ A rational cognitive consistency is a balanced attitude structure that can be explained by the actor's well-grounded beliefs about an existing environmental consistency. Jervis warns of irrational cognitive consistency, "Decision-makers are purchasing psychological harmony at the price of neglecting conflicts among their own values and are establishing their priorities by default."²² Clearly, neglecting facts to favor

16. Jervis, *Perception and Misperception in International Politics*, 3.

17. Jervis, *Perception and Misperception in International Politics*, 3.

18. Jervis, *Perception and Misperception in International Politics*, 31.

19. Jervis, *Perception and Misperception in International Politics*, 112.

20. Jervis, *Perception and Misperception in International Politics*, 112.

21. Jervis, *Perception and Misperception in International Politics*, 117.

22. Jervis, *Perception and Misperception in International Politics*, 139.

prioritized values and establishing priorities by default is contrary to sound strategy development.

Irrational cognitive consistency occurs when the strategist avoids value trade-offs, fails to recognize the influence of existing beliefs, or prematurely reaches cognitive closure. Failure to recognize the influence of existing beliefs was covered in the previous subsection. Avoidance of value trade-offs is a failure to appropriately balance values and goals during difficult decision making. Over investment in one value and assuming its solution will work for multiple decisions is an oversimplification of the decision making process. A steadfast value will not necessarily have the lowest cost, lowest risk or highest chance of success in subsequent decisions. Cognitive distortion is the failure to recognize or look for information contrary to one's theories, or exercise excessive and premature cognitive closure. All three instances of irrational cognitive consistency present irrational information to the strategist and reduce the utility of his or her RAM.

Jervis acknowledges the complexity and ambiguity of processing information, making decisions about international relations, and associated common errors.²³ However, he asserts that historical examples have presented us with common misperception errors, from which we can devise avoidance strategies.²⁴ Jervis outlines four common misperception errors. Centralization is an overestimation of another state's actions as centralized, planned and coordinated.²⁵ The second is an overestimation of one's importance or influence as a target. The third is the influence of desires and fears on perceptions.²⁶ The fourth, cognitive dissonance, was presented as a separate theory and postulates that people sometimes alter their beliefs and evaluations to justify previous behavior and reduce dissonance.²⁷ Misperception avoidance strategies include: making assumption and predictions explicit, encouraging devil's advocates, heeding conversions of opinions, separating policy maintainers from judges, and being aware of aforementioned misconceptions.²⁸ All of these strategies are quite similar to strategies for confronting groupthink as presented by Irving Janis in his 1982 book *Groupthink*.

23. Jervis, *Perception and Misperception in International Politics*, 409.

24. Jervis, *Perception and Misperception in International Politics*, 409.

25. Jervis, *Perception and Misperception in International Politics*, 319.

26. Jervis, *Perception and Misperception in International Politics*, 343, 356.

27. Jervis, *Perception and Misperception in International Politics*, 382.

28. Jervis, *Perception and Misperception in International Politics*, 409-424.

Janis' explanation of the groupthink syndrome describes how group dynamics increases the frequency of many of the same misperceptions presented by Jervis. Three ways groupthink affects perceptions in a group are overestimations of the group's power and morality, closed-mindedness, and pressures toward conformity.²⁹ Groups that tend to avoid groupthink generally have a critical evaluator, impartial leaders, independent policy-planning and evaluation groups, separate sub-groups, outside experts, a devil's advocate, a warning-sign surveyor, and second-chance meetings.³⁰ Even if these and Jervis' avoidance strategies work well to avoid common cognitive consistency perception errors, the strategist must also understand and avoid similar challenges in the interpretation of information.

Interpretation of Information. With the two previous subsections in mind, the strategist must now practice deliberate interpretation of information. One common example of erroneous interpretation of information is inappropriate use of historical analogies. As Yen Foong Kong explicates in his 1992 book *Analogies at War*, problems with historical analogies make their use in strategy making highly difficult if not impossible. Historical analogies are mental shortcuts one employs to relate a current event to one of the past. The strategist typically selects the historical event based on superficial similarities. However, the two events usually have many less obvious but critical differences. Khong calls this problem *top-down* application.³¹ The problem becomes apparent when unfolding events disprove assumptions of congruence. Further complicating matters, even once the strategist realizes the differences, the mental shortcut is hard to dismiss. Khong calls this problem *analogy perseverance*.³²

Regardless, policy makers tend to rely on historical analogies to assist them in performing six diagnostic tasks: defining the nature of the problem, providing a sense of the political stakes involved, implying solutions, implying the solutions' likelihood of success, assessing moral rightness, and providing warnings of

29. Janis, *Groupthink*, 174-5.

30. Janis, *Groupthink*, 262-70.

31. Khong, Yuen Foong, *Analogies at War: Korea, Munich, Dien Bien Phu, and the Vietnam Decisions of 1965*, (Princeton, N.J.: Princeton University Press, 1992), 37.

32. Khong, *Analogies at War*, 39.

danger.³³ Policy makers also employ schemas which are not as specific as analogies. Schemas are subjective theories about how the social or political world works.³⁴ Accordingly, the strategist must be highly critical of analogies and to a lesser degree, schemas.

Key decision makers and most of society commonly use these highly persuasive mental images to influence policy and decisions. Some analogies are useful, but only to the extent that all details of the two events are closely aligned. As such, useful historical analogies are extremely specific and rare. When analogies are utilized during strategy making, deliberate analysis must explicate every way the analogy differs from the current situation to prevent the aforementioned adverse effects.

The PPI-Focused RAM

As previously stated, one of the biggest advantages of focusing on PPI when employing the RAM is that it explains what a basic RAM might consider an irrational anomaly requiring supplementary models. As seen in Figure 2 above, this PPI-focused RAM incorporates concepts from many other theories on decision making, international relations, and war. However, the model presented in Figure 2 is not intended to represent a concrete theory, but rather an example of a new, deliberate approach to developing sound strategy from a current theory on war. As factors change, such as the international environment, technology and social forces, the model must be adjusted to remain useful. The next several paragraphs provide an explanation of the construction of the PPI-focused RAM presented in Figure 2.

Perceived Threats and Opportunities. First, the strategist must attempt to identify what each actor involved perceives as threats and opportunities. To do so, consideration must be provided to the influence and accuracy of existing strategic paradigms. Kuhnian approaches to align paradigms with reality are critical. Likewise, the strategist must evaluate all possible cultural, cognitive and ego psychology perceptions at play and deliberately employ Jervis' misperception avoidance strategies.³⁵ The most obvious perceptions at play are those driving enemy threats and our opportunities.

33. Khong, *Analogies at War*, 21-22.

34. Khong, *Analogies at War*, 39.

35. Jervis, *Perception and Misperception in International Politics*, 8.

However, other theories highlight the vital importance of several other key perceptions. Drawing from theorists such as Kenneth Waltz, Hedley Bull, and Robert Gilpin, and lessons from the interwar years, the strategist must carefully consider all actors' perception of the prevalence of balance-of-power politics and the importance of relative and absolute gains.³⁶ Likewise, today's international environment forces the strategist to consider all actors' perception of the role of regionalism and globalization.³⁷ Theorists such as Clausewitz, Warden, Pape, and Fuller, as well as students of the Vietnam War all stress the importance of perceived physical, mental and moral Centers of Gravity (COGs).³⁸ Theorists like Kurzweil, the pace of technological evolution, and the Cold War arms race all highlight the importance of perceived threats and opportunities introduced by new technologies.³⁹ Finally, Sun Tzu reminds strategists to consider the perceived role of deception, communication with the enemy and perceptions of enemy perceptions.⁴⁰ These considerations in the careful evaluation of PPI must accompany the identification of all perceived threats and opportunities.

Known and Perceived Goals. Next, the strategist must identify each actor's goals. Of course, the strategist's own goals are known, but as described in the next section, political or organizational goals are more difficult to determine. Similarly, other actors' goals are often unclear and driven by perceived threats and opportunities. However, as Murray and Schelling suggest, some grand-strategic perceptions can be deliberately managed. Actors must determine whether other actors' goals are oriented more towards survival or power accumulation.⁴¹ Likewise, each actor's goals will highlight perceived tendencies towards the use of coercion or brute force. Like the perceptions identified in threats and opportunities, perceived goals must be treated with deliberate avoidance strategies for flawed PPI.

36. Waltz, *Man, the State, and War*, xi; Gilpin, *War and Change in World Politics*, 28, 34, 92; Bull, *The Anarchical Society*, 97, 102.

37. Dicken, *Global Shift*, 553; Buzan and Wæver, *Regions and Powers*, 27.

38. Clausewitz, *On War*, 596; Olsen, *John Warden and the Renaissance of American Air Power*, 224; Pape, *Bombing to Win*, 9; Osinga, *Science, Strategy and War*, 32.

39. Kurzweil, *The Age of Spiritual Machines*, 17.

40. Tzu, *The Illustrated Art of War*, 118.

41. Murray, Sinnreich, and Lacey, *The Shaping of Grand Strategy*, 33; Schelling, *Arms and Influence*, 5-7.

Perceived Options. The third step of the PPI-focused RAM is for the strategist to determine each actor's perceived options for addressing threats and opportunities in the pursuit of goals. Generally, these fall within the traditional diplomatic, informational, military and economic (DIME) instruments of power. Again, many theoretical concepts were synthesized within the PPI-focused RAM. Theorists such as Keenen and Walzer remind strategists of the importance of perceived legal, ethical and political limitations.⁴² Allison and Zelikow's second model highlights organizational behavior implications and explains how some governmental decisions seem to deviate from what is presumed rational because of government organizations, organizational components, standard operating procedures, and associated capabilities and constraints in producing information, generating the menu of options and implementing the decision.⁴³

Other perceived organizational factors that can affect an actor's options include the role of organizational character, and political-military and interagency coordination.⁴⁴ The next step in the PPI-focused RAM employs Allison and Zelikow's third model and addresses the perceived implications of governmental politics on an actor's options.⁴⁵ This model focuses in greater detail on the individuals who constitute a government and the politics and procedures by which competing agendas succeed.⁴⁶ As such, the key perceptions involved in governmental politics concern the distribution of power within a government, individual personalities involved and resultant governmental stability and predictability. However, other less obvious perceptions exist, including societal and governmental desires for cognitive consistency, and chances of military leadership shirking.⁴⁷

Kenneth Waltz again provides some framework to the model with his theory on the images of international conflict. While likely not all are at play at one time, the strategist must consider perceived options available to actors based on each of Waltz's images. First, the strategist must consider the implications of human nature on the conflict on a scale ranging from Machiavellian Fundamentalism to Lockean/Benthamite

42. Walzer, *Just and Unjust Wars*, 21.

43. Allison and Zelikow, *Essence of Decision*, 390.

44. Morgan, *Images of Organizations*, 365; Feaver, *Armed Servants*, 3; Allison and Zelikow, *Essence of Decision*, 390.

45. Allison and Zelikow, *Essence of Decision*, 390.

46. Allison and Zelikow, *Essence of Decision*, 390.

47. Feaver, *Armed Servants*, 3.

Institutionalism.⁴⁸ Second, the strategist must consider the implications of state structure on the conflict on a scale ranging from Rousseauian Constitutionalism to Smith/Schumpeterian Commercialism.⁴⁹ Third, the strategist must consider the implications of the anarchic international environment on the conflict on a scale ranging from Hobbesian structuralism through Kantian Internationalism to Wendtian Constructivism.⁵⁰

Perceived Costs, Benefits and Best Choice. The fourth and fifth steps of the PPI-focused RAM require the strategist to determine each actor's perceived costs and benefits of each option and determine the perceived best choice and confidence interval. During this process, the strategist must weigh important economic principles including opportunity costs, contractual implications, information asymmetry, marginal returns, and substitution.⁵¹ Likewise, Boyd's theory requires the strategist to consider each actor's approach to chaos.⁵² Whether cybernetic or chaoplexic warfare methods are employed, missing information and OODA-loop speed will prove critical.⁵³ However, by this point in the RAM, the real work has already been accomplished.

As Jervis describes, the math is not hard; goals, perceptions, and calculus determine policy and decisions.⁵⁴ The calculus is simply the factor of probability and magnitude of benefit minus the factor of probability and magnitude of cost ($B(p)B - C(p)C$).⁵⁵ While the PPI-focused RAM may generate many branches and sequels, careful consideration of perceived threats, opportunities, goals and options will provide analysis of the conflict in a calculated and organized manner. For each actor's possible goals, the probability of various acts can be determined with confidence intervals determined by careful PPI management.

Overcoming inaccurate paradigms, misperceptions and interpretations of information requires deliberate effort in each step of the RAM with an understanding of

48. Waltz, *Man, the State, and War*, x; Doyle, Michael, *Ways of War and Peace*, 198, 302.

49. Waltz, *Man, the State, and War*, x; Doyle, Michael, *Ways of War and Peace*, 198, 302.

50. Waltz, *Man, the State, and War*, x; Doyle, Michael, *Ways of War and Peace*, 198, 302; Wendt, *Social Theory of International Politics*, 135-7.

51. Brauer and Van Tuyl, *Castles, Battles, and Bombs*, xvii.

52. Osinga, *Science, Strategy and War*, (Boyd's Observe-Orient-Decide-Act model), 96.

53. Osinga, *Science, Strategy and War*, (Boyd's Observe-Orient-Decide-Act model), 96.

54. Jervis, *Perception and Misperception in International Politics*, 31.

55. Pape, *Bombing to Win*, 16.

the associated concepts, pitfalls, implications and avoidance strategies. This PPI-focused RAM model drew from an inter-disciplinary review of works that provide theoretical concepts pertaining to decision making, international relations and war. As most theories and models attempt to explain factors separate from the RAM, this model demonstrates the power of improved PPI by synthesizing many theoretical concepts back into the RAM. The theories synthesized into a PPI-focused RAM for strategy development should be reassessed by strategists each time it is employed, given the relative significance of various forces at play, but should remain as comprehensive as possible. In fact, the utility of this PPI-focused model for rational strategy development presented in Figure 2 could be further improved with an inclusion of other theories. However, as presented, this model is sufficient to explain why the US strategies during the 1948 Berlin Crisis and 1962 Cuban Missile Crisis prevailed over those of the Soviet Union.

CHAPTER 2

1948 Berlin Crisis Analysis with PPI-Focused RAM

The dramatic Berlin Crisis of 1948 provides evidence for the explanatory utility of a PPI-focused model for rational strategy development. While many scholars attribute the outcome of the crisis to the technological and managerial excellence of the airlift itself, analysis of underlying Soviet and US strategies provides a more comprehensive explanation as to why the US prevailed.¹ Soviet strategies during the Berlin Crisis of 1948 were plagued by inaccurate paradigms, perceptions and flawed interpretation of information. Meanwhile, US strategies seemed to prevail due, at least in part, to more deliberate PPI management. The explanatory power of the PPI-focused RAM will be demonstrated by stepwise progressions through the RAM from both the Soviet and US perspectives.

Circumstances Stalin Perceived as Threats and Opportunities

Stalin labored under many misperceptions of the threats and opportunities facing the USSR during the Berlin Crisis of 1948. In his 1973 biography of Stalin, Adam Ulam explains, “a younger and more flexible man would have been more alert to all the opportunities which the breakdown of the Western imperial systems presented to Soviet diplomacy...Before WWII, Stalin’s major foreign-policy errors could be traced to ideological misperceptions or an excusable if faulty reliance on lessons of history.”² These misperceptions of the emerging opportunities and threats led him to take a most dangerous gamble in 1948—the Soviet blockade of Berlin.³

In Stalin’s mind, the most compelling reason for a blockade was a need to respond to threats from the West. He feared the unification of the Western powers’ occupation zones and the specter of the future with a strong West German state.⁴ This gloomy forecast included German rearmament, which might conceivably support

1. Tunner, William H, *The Berlin Airlift*, Reprinted with permission from General Tunner's autobiography *Over the Hump*, (Office of Air Force History, 1985); Smith, Jean Edward, *Lucius D. Clay, An American Life*, (New York: Henry Holt and Company, Inc., 1990); Plating, John D., *The Hump: America’s Strategy for Keeping China in World War II*, (College Station: Texas A&M University Press, 2011); Gaddis, John L., *The Cold War; A New History*, (New York: Penguin Group, 2005).

2. Ulam, Adam B., *Stalin; The Man and His Era*, (New York: The Viking Press, 1973), 686-8.

3. Ulam, *Stalin*, 686-8.

4. Ulam, *Stalin*, 686-8.

uprisings against Soviet domination in East Germany, Czechoslovakia, and elsewhere.⁵ Additionally, he feared an alliance between German militarists and Wall Street capitalists who might force a confrontation with the USSR.⁶ Stalin's perceived opportunity was the chance that a blockade, timed correctly, could press the Americans to give up on a West German state or accept a Soviet-controlled currency.⁷ He was well aware of the prevailing US wariness of foreign entanglements, the dynamics of Presidential elections, and the unwillingness of millions of American citizens to get involved in another war.⁸ Stalin perceived an opportunity to create a situation where the Americans would tire or get frightened, go home, and abandon their support of the West German state.⁹

As the Cold War unfolded, Stalin and the US leaders accurately perceived the prevalence of balance-of-power politics, the importance of relative versus absolute gains, and the role of regionalism. These accurate perceptions were evident as Stalin slowly stepped up pressure on the French during 1948. His efforts nearly succeeded as the French resisted the creation of West German government due to political pressures within France.¹⁰ Likewise, Stalin correctly assessed the importance of Berlin's geographic position as a Western stronghold within the Soviet sector. As did the US leaders, Stalin focused on relative gains as the Berlin Crisis solidified into a Cold War zero-sum conflict. However, adherence to some existing strategic paradigms misled Stalin.

Stalin's most incompatible strategic paradigm was the idea that communist territories must be governed using measures of brutal control. When coupled with Soviet expectations of war reparations, the Soviet Army's horrific treatment of German civilians fortified many Berliners' loyalty to the Western Powers. Soviet Military Governor of Berlin Marshal Sokolovsky's June 1948 statement referring to Berlin as part of the Soviet occupation zone terrified West Berliners who remembered when the Russian troops poured into the city to rape, loot, and murder.¹¹ Ironically, even Stalin himself seemed to

5. Gosnell, Harold F., *Truman's Crises: A Political Biography of Harry S. Truman* (Westport CT: Greenwood Press, 1980), 429.

6. Ulam, *Stalin*, 686-8.

7. Ulam, *Stalin*, 686-8.

8. Ulam, *Stalin*, 686-8.

9. Ulam, *Stalin*, 686-8.

10. Smith, *Lucius D. Clay*, 471.

11. Tusa, John and Ann, *The Berlin Airlift*, (New York: Atheneum Macmillan Publishing Company, 1988), 23; Tunner, *The Berlin Airlift*, 157.

acknowledge this paradigmatic error in an April 1947 interview with former Minnesota governor Harold Stassen. While trying to argue for the coexistence of Western capitalism and Soviet communism, he described Soviet enforcement of communism as a system “chosen by the people... When the people wish to change the systems they will do so.”¹² Khrushchev addressed Stalin’s flawed strategic paradigm for control in his discussion of “The Question of Questions.” Khrushchev explains, “Paradise is a place where people want to end up, not a place they run from! Yet in this country, which is supposed to be the workers’ paradise, the doors are closed and locked. What kind of socialism is that? What kind of shit is it when you have to keep people in chains?”¹³

This paradigmatic strategic error and other causes of misperceived threats and opportunities can be explained by Stalin’s cognitive and ego-psychological flaws. Khrushchev describes how Stalin reserved all foreign policy decisions for himself. He recalled, “Stalin would snarl threateningly at anyone who overstepped the mark.”¹⁴ Khrushchev was unsure whether Stalin seriously intended to create a socialist state and had to guess why Moscow blockaded Berlin in 1948, since “Stalin never actually discussed issues like this with anyone.”¹⁵ Khrushchev states, “Stalin blockaded Berlin in 1948 without gauging our possibilities realistically. He didn’t think it through properly.”¹⁶ Ulam suggests, “There must have been voices in the Kremlin who pleaded with Stalin that pressure on Berlin was likely to bring about what he was most afraid of. But of course no one argued...”¹⁷ Ulam’s and Khrushchev’s accounts of Stalin’s closed decision-making system suggest he did not deliberately avoid misperception pitfalls or properly consider the importance of US perceptions.

12. *For Peaceful Coexistence: Post War Interviews*. April 9, 1947 interview with Harold Stassen on Coexistence, American-Soviet Cooperation, Atomic Energy, Europe. International Publishers, New York, 1951.

13. *Khrushchev's secret tapes*. By: Khrushchev, Nikita, Time, 0040781X, 10/1/1990, Vol. 136, Issue 14. Database: EBSCO HOST: Military & Government Collection.

<http://web.ebscohost.com/auftridm.oclc.org/ehost/detail?vid=4&sid=74d8ab1e-269b-4a97-bcee-985afacb8908%40sessionmgr12&hid=18&bdata=JnNpdGU9ZWwhvc3QtbGl2ZSZZY29wZT1zaXRl#db=mth&AN=9010011896>

14. Taubman, William, *Khrushchev; The Man and His Era*, (New York: W.W. Norton & Company, Inc., 2003), 329.

15. Taubman, *Khrushchev*, 329.

16. Taubman, *Khrushchev*, 332.

17. Ulam, *Stalin*, 686-8.

Stalin failed to properly assess the accuracy of the perceptions driving critical threats and opportunities. While both the US Marshall Plan and Soviet Security Periphery Plan were perceived by the other as offensive, Stalin had other key misperceptions of enemy threats and Soviet opportunities. Stalin's most critical misperceptions of enemy threats were underestimating: the effect of demonstrated US commitment to West Berlin; the airlift capabilities of the Allied powers; and the West Berliners' resolve. Stalin's most critical misperceptions of Soviet opportunities were overestimating the probability of being able to leverage the crisis to halt the establishment of a separate West German state or to establish a sole Soviet currency.

Another of Stalin's misperceptions in assessing threats and opportunities was in the identification of physical, mental and moral Centers of Gravity (COGs).¹⁸ As military theorist John Boyd states, a strategic aim is to "Penetrate the adversary's moral, mental and physical being to dissolve his moral fiber, disorient his mental images, disrupt his operations, and overload his system. This action destroys enemy's internal harmony, producing paralysis, which collapses the adversary's will to resist."¹⁹ Stalin demonstrated a fixation on the physical sphere; instead, the moral sphere within Berlin proved to be a critical COG.

Second-order effects of Stalin's physical-sphere blockade undoubtedly affected the Berliners' moral sphere by undermining the credibility of Western Powers' promise to supply the city.²⁰ However, he ignored other Soviet actions directly affecting the Berliners' moral sphere. The Soviet Army's brutal treatment of Berliners proved to be a critical factor that determined the outcome of the crisis. During the blockade, Stalin tightened his grip on the East Berliners. As Ann and John Tusa explain in their 1988 book *The Berlin Airlift*, "Suspected dissidents, former factory and land owners, teachers, doctors and police officials were branded as Nazis or undesirables and sent for re-education. It was not necessary to build new educational establishments for the purpose: old concentration camps like Buchenwald and Sachsenhausen were conveniently available. It has been reckoned that between 1945 and 1950 as many as 200,000 people

18. Osinga, Frans P.B., *Science, Strategy and War; The strategic theory of John Boyd*, (New York: Routledge, 2007), 176.

19. Osinga, *Science, Strategy and War*, 176.

20. Tusa, *The Berlin Airlift*, 88.

from the Russian zone were sent to the camps; up to a third died there.”²¹ These Soviet actions, driven by Stalin’s critical perceptual errors, continued despite obvious conflicting indicators. The most significant of these was a single event that occurred on June 24, 1948. On this day, Mayor-elect Ernst Reuter called for the world to help the Berliners during “the decisive phase of the fight for freedom,” This was an appeal the Western Powers could not possibly resist.²² More importantly, his call for a united German defiance of communism was answered with a roar of approval from over eighty thousand Berliners.²³

Stalin also misperceived the threats and opportunities introduced by new technologies. The most notable during the Berlin Crisis was the viability of using airlift as a version of “soft” or “non-kinetic” airpower. Like many Americans in Washington, Stalin did not think an airlift could supply West Berlin indefinitely. However, the Soviets knew even less about new airlift developments such as instrument flying, improved cargo and maintenance processes, and ground approach control. Accordingly, the Soviets relied on inaccurate airlift paradigms reinforced by inaccurate historical analogies.²⁴

These inaccurate paradigms were based on the German failure to resupply the Sixth Army at Stalingrad, but neglected other historical evidence.²⁵ Meanwhile, the Demyansk and Hump airlift successes, and the long US experience with commercial aviation, encouraged the US to test the concept.²⁶ In fact, the rate of cargo delivery expanded or compressed into yearly averages suggests that the Berlin airlift’s success was quite predictable. The Demyansk, Stalingrad, Hump and Berlin airlifts’ cargo delivery per year was 65,000, 104,000, 185,000 and 2,400,000 tons, respectively.²⁷ Considering the Hump airlift routes were five times further than those of Berlin, its tonnage rate increased by a factor of five, bringing the figure to 925,000 tons. Tripling this figure is entirely conceivable by removing the highest mountain range in the world

21. Tusa, *The Berlin Airlift*, 59.

22. Tusa, *The Berlin Airlift*, 142.

23. Tunner, *The Berlin Airlift*, 157.

24. Tunner, *The Berlin Airlift*, 184.

25. Hardesty, Von and Ilya Grinberg, *Red Phoenix Rising: The Soviet Air Force in World War II*, (Lawrence, KS: University Press of Kansas, 2012), 138-40; Tunner, *The Berlin Airlift*, 184.

26. Hardesty and Grinberg, *Red Phoenix Rising*, 100.

27. Hardesty and Grinberg, *Red Phoenix Rising*, 100, 138-40; Tunner, *The Berlin Airlift*, 222.

from the route of flight and adding higher-capacity aircraft such as the C-54s and C-97s.²⁸

Stalin's Perception of Each Actor's Goals

Soviet and US grand strategic goals were properly assessed by both nations. Both powers generally employed grand strategies that were oriented more towards power than survival. Each postured to increase its relative power on the European continent, but also deliberately avoided escalation that would have required a transition to more survival-oriented strategies.²⁹ Likewise, both nations properly perceived that each nation's goals were best and most likely to be pursued via coercion rather than brute force, because coercive measures afforded pursuit of goals with less threat of escalation.³⁰ The perceived importance of careful coercion was validated as each nation attempted to compel and deter various enemy actions without brute force or even anything that could be perceived as an ultimatum.

Stalin's Perception of Each Actor's Options (IOPs) for Addressing the Crisis

As described above, Stalin's paradigms, and the perceived threats and opportunities, led him to select the option of a blockade. Stalin believed that a blockade, timed correctly, could compel the Americans to give up on a West German state or at least accept a Soviet-controlled currency.³¹ His strategy hinged on the physical needs of the Berliners, a perceived declining resolve amongst US decision makers, and the Soviet ability to raise the blockade if escalation threatened to ignite WWII.³² However, paradigmatic and perceptual errors, especially in the estimation of US and the Berliners' resolve, the effects of Soviet brutality, Allied airlift capacity, and possible costs, plagued Stalin's chances.

During the crisis, Stalin kept the door open to a diplomatic agreement and even worked to appear conciliatory, stating "We are still allies" to a group of Western

28. Tunner, *The Berlin Airlift*, 152, 202.

29. Murray, Williamson, Richard Hart Sinnreich, and James Lacey, eds, *The Shaping of Grand Strategy: Policy, Diplomacy, and War*, (Cambridge: Cambridge University Press, 2011), 33.

30. Schelling, Thomas, *Arms and Influence*, (New Haven: Yale University Press, 1966), 5-7.

31. Ulam, *Stalin*, 686-8; *For Peaceful Coexistence: Post War Interviews*. October 28, 1948 interview with a correspondent of Pravda on Berlin Crisis, the U.N. and Anglo-American Aggressive Policies, Churchill. International Publishers, New York, 1951.

32. Ulam, *Stalin*, 686-8.

ambassadors in August 1948.³³ He was careful to not issue ultimatums from which he may have had to back down, but dangerously gambled that the US would follow suit.³⁴ In an October 1948 interview on the Berlin Crisis with a correspondent from *Pravda*, he vowed the blockade would be immediately lifted if the Western Powers agreed to the establishment of a Soviet controlled single currency for all of Berlin.³⁵ When Washington refused, Stalin gave another interview on the subject in January 1949 to Kingsbury Smith, a representative of *International News Service*. In this second interview, he stated the blockade would be lifted if the US abandoned the establishment of a separate German state.³⁶

While the blockade was technically “legal” in that no supply-route agreement was established in writing, Stalin ignored ethical and political limitations. His expectations of US organizational behavior and governmental politics proved to be correct in that they did not issue an ultimatum. However, as explicated in the next section, these expectations lacked confidence intervals that should have been required given the significant risks that would accompany a US ultimatum. His expectations of Soviet organizational behavior and governmental politics were also accurate, as would be expected in a dictatorship. Stalin’s attempt to propagandize international cooperation and communist-capitalist coexistence fell on deaf ears while his tendencies towards Waltzian international anarchy led to unwarranted paranoia. The former is evident in his interview with Stassen in 1947, while Khrushchev amply documents the latter in his memoirs.³⁷

Stalin’s other option in 1948 was simply to wait. Domestic pressures existed within the Western Powers to avoid entanglements like Berlin. Efforts also could have been made to improve the East Berliners’ quality of life and relax reparations in order to decrease the West Berliners’ loyalty to the Western Powers. Likewise, propaganda could have been focused more on the minds of the Berliners to convince them that the Western Powers’ intentions would bifurcate the people of Germany.

33. Ulam, *Stalin*, 686-8.

34. Ulam, *Stalin*, 686-8.

35. *Pravda*.

36. *For Peaceful Coexistence: Post War Interviews*. January 27, 1949 interview Kingsbury Smith, representative of International News Service on Berlin, Disarmament, Stalin-Truman Meeting. International Publishers, New York, 1951.

<http://www.marxists.org/reference/archive/stalin/works/1949/01/27.htm>.

37. Stassen; Khrushchev's secret tapes.

Once the US began the airlift, Stalin was presented with an option to interfere with the transport flights. However, Stalin knew that shooting down any American plane might invite retaliation by atomic-capable bombers. Stalin believed strongly that the Berlin Crisis did not justify the destruction that would follow.³⁸

Stalin's Perception of Each Actor's Strategic Costs, Benefits and Best Options

As presented by Robert Jervis and as discussed in Chapter 1, cost-benefit analysis is represented by the following equation: Goals + Perceptions + Calculus [$Bp(B) - Cp(C)$] = Policy & Decisions.³⁹ At this point in the PPI RAM, the focus is on the calculus portion of the equation. $P(B)$ is the probability of receiving benefit B and $p(C)$ is the probability of having to pay cost C . A benefit is anything perceived as helpful towards achieving objectives and a cost is anything detracting from those same objectives. There may be more than one B and C , but likely only a few are relevant to the outcome of the calculus. Finally, it is imperative to remember that all estimations of probability have critical confidence intervals that are also based on the strategist's paradigms, perceptions, and interpretation of information, including those of the adversaries' calculus.

Stalin's cost-benefit analysis, like his perceived options and goals, was largely misguided by fundamental misperceptions of threats and opportunities. However, errors in Stalin's cost-benefit analysis are also evident. Some of this can be explained by the nature of the Soviet closed system. Stalin's centralized decision making with minimal input slowed the speed and accuracy of his Observe-Orient-Decide-Act (OODA) loop significantly, relative to that of the Western Powers.

First, expected costs associated with a failure of the blockade could not have been adequately weighed. An abrupt lifting of the blockade in response to an anticipated Western backlash would have serious consequences for the Soviet position in Eastern Europe.⁴⁰ As Ulam explains, "Stalin had just embarked on his conflict with Tito and begun to tighten screws in the satellites. Withdrawal in the face of a Western ultimatum

38. Gaddis, *The Cold War*, 56; Tusa, *The Berlin Airlift*, 174.

39. Jervis, Robert, *Perception and Misperception in International Politics*, (Princeton, N.J.: Princeton University Press, 1976), 31.

40. Ulam, *Stalin*, 686-8.

might precipitate rebellion in Poland or Czechoslovakia.”⁴¹ The perceived low probability of realizing these costs was driven by Stalin’s reliance on the climate winning Berlin for him. Of course, the relatively mild winter made these costs a reality, the failed blockade forced European communism into a defensive posture, and NATO’s formation rapidly accelerated.⁴²

Second, Stalin was playing with fire in order to achieve only modest benefit.⁴³ This blockade was a risk that Ulam explains “a younger, less megalomaniac Stalin would not have undertaken.”⁴⁴ Regardless of the value of $p(C)$, the value of C should have been foremost in Stalin’s calculations. The Soviet Union still had not developed the atomic bomb. The $p(C)$ of nuclear escalation was not zero because there was always a chance of rapid escalation or that the growing exasperation in the US with Soviet policies *might* trigger a “let’s get it over with” feeling.⁴⁵

By the spring of 1949 it was obvious that Stalin’s strategy had been frustrated by the massive airlift.⁴⁶ The West German state was coming into being, the North Atlantic Treaty was signed in April, and the US was going ahead with its military support of Western Europe.⁴⁷ Stalin’s next round of calculus took into account the pro-Western propaganda generated by the historic airlift and proved more reliable. Stalin decided to lift the blockade in May of 1949.

However, not until December did Stalin realize the full cost of the Berlin blockade. Marshal Tito’s abrupt announcement of Yugoslavia’s defection from the Comintern marked the end of Russia’s centuries-old expansion in Asia.⁴⁸ As Ulam explains, “For the first time in his career as dictator, he authorized cession of Soviet territory to a foreign power, and had to agree to an abrogation of Soviet right and privileges on foreign territory.”⁴⁹ For the Soviets, a strategic paradigmatic revolution called for retrenchment and consolidation.⁵⁰ What Stalin perceived as Soviet defensive

41. Ulam, *Stalin*, 686-8.

42. Tusa, *The Berlin Airlift*, 321; Smith, *Lucius D. Clay*, 471.

43. Ulam, *Stalin*, 686-8.

44. Ulam, *Stalin*, 686-8.

45. Ulam, *Stalin*, 686-8.

46. Smith, *Lucius D. Clay*, 530.

47. Ulam, *Stalin*, 686-8.

48. Ulam, *Stalin*, 686-8, Smith, *Lucius D. Clay*, 530.

49. Ulam, *Stalin*, 686-8.

50. Smith, *Lucius D. Clay*, 530.

measures had an offensive character that wound up increasing rather than decreasing the Soviet Union's security problems.⁵¹ Stalin's ideological illusions of building disagreements among capitalist nations and Anglo-American war did not prove accurate.⁵² His strategy for gaining control of postwar Europe lay in ruins, and he had largely himself to blame.⁵³ However, it was a different story for the US. The tremendous airlift success and crisis' termination were accompanied by the unification of Western Europe and the diminished posture of European communism.⁵⁴ The same lens provided by the PPI-focused RAM explains why.

Circumstances the US Perceived as Threats and Opportunities

The U.S perceptions of threats and opportunities during the Berlin Crisis of 1948 were more accurate than those of Stalin. The Marshall Plan and US realization of the importance of the German industrial base to Europe's recovery exemplified the US strategic paradigm of 1948. However, the Berlin Blockade forced the US to reassess all paradigms, perceptions and interpretation of information as the crisis developed.

As with those of Stalin, the US perceptions of the prevalence of balance-of-power politics, the importance of relative gains, and role of regionalism were all generally accurate. The US was properly focused on relative rather than absolute gains, within the context of Cold War zero-sum politics. The US understood that the crisis marked the end of a wartime alliance, heralded the rehabilitation of Germany, and marked the outer limit of Communist expansion in Europe.⁵⁵ Western determination and resourcefulness galvanized the democratic nations to stand firm against Communist encroachment, rejuvenated a dispirited war-weary population, demonstrated American and British commitment in Western zones of Germany, and established frontiers to minimize the risk and uncertainty of military conflict.⁵⁶

In his 1990 biography of Lucius D. Clay, Jean Smith explained how President Truman and Clay, Commander-in-chief of US Forces in Europe and military governor of the US Zone in Germany, were determined to not allow the Russians to drive the US out

51. Gaddis, *The Cold War*, 34.

52. Gaddis, *The Cold War*, 34.

53. Gaddis, *The Cold War*, 34.

54. Gaddis, *The Cold War*, 34.

55. Smith, *Lucius D. Clay*, 463.

56. Smith, *Lucius D. Clay*, 463.

of Berlin.⁵⁷ Stalin offered to lift the blockade in return for Western acceptance of the East Mark as the sole currency and abandonment of the West Berlin government, but this offer was impossible for Truman to accept.⁵⁸ Truman was influenced by both a genuine fear of war and the upcoming heavily contested presidential election.⁵⁹ Truman properly assessed the largest threat associated with the Berlin Crisis, that US and Soviet displays of strength could quickly escalate and “ignite the powder keg.”⁶⁰ Likewise, the challenge from Henry Wallace and the growing Progressive Party made him unwilling to appear bellicose vis-à-vis the Russians.⁶¹ As McCullough explains in his 1992 Truman biography, “Yet in nothing he [Truman] said or wrote is there a sign of his playing the situation for political advantage.”⁶² Rather, he felt the campaign and its distractions could not have come at a worse time.⁶³ In a letter to Churchill on July 10, 1948, Truman wrote, “I am going through a terrible political ‘trial by fire.’ Too bad it must happen at this time.”⁶⁴ Much of Washington, including the Pentagon, tended to have less determination than Truman and Clay in the defense of the Western sectors of Berlin.⁶⁵

In his memoirs, President Truman described how the blockade was immediately recognized as a “serious situation.”⁶⁶ However, when he asked Clay whether the situation was serious enough to remove the families of US personnel from Berlin, Clay argued not to do so due to the “psychological effects.”⁶⁷ Truman recalled, “General Clay placed before us an account not only of the technical achievement of the airlift but also of the effect our action in Berlin had on the German people. They had closed ranks and applied to the task of reconstruction with a new vigor. It had turned them sharply against communism. Germany, which had been waiting passively to see where it should cast its lot for the future, was veering toward the cause of the Western nations.”⁶⁸ Truman had

57. Smith, *Lucius D. Clay*, 476.

58. Tusa, *The Berlin Airlift*, 207.

59. Smith, *Lucius D. Clay*, 476.

60. Truman, Harry S, *Memoirs by Harry S. Truman*, (Garden City, NY: Doubleday & Company, Inc., 1956), 124.

61. Smith, *Lucius D. Clay*, 476.

62. McCullough, David, *Truman*, (New York: Simon & Schuster, 1992), 648.

63. McCullough, *Truman*, 648.

64. McCullough, *Truman*, 648.

65. Smith, *Lucius D. Clay*, 476; Gosnell, *Truman's Crises*, 359.

66. Truman, *Memoirs*, 123.

67. Truman, *Memoirs*, 123.

68. Smith, *Lucius D. Clay*, 468.

fully realized Clay's powerful strategy of leveraging the moral sphere of an overlooked, critical actor in the Berlin crisis, the West Berliners.

Accordingly, US perceptions of the relative importance of physical, mental and moral COGs were more accurate than those of Stalin, and provided for sound strategy development. Most notably, the US realized that the confidence and trust of West Berliners was a critical COG, and indeed their resolve proved to be a key determinant of the crisis' outcome.⁶⁹ Both Truman and Clay had been reared on stories of the Civil War, emphasizing the excesses of Northern troops and Yankee exploitation in the ante-bellum period.⁷⁰ Both understood the bitterness of defeat and the arrogance of occupation. Further, Americans tended to hold less hatred for Germans than their European allies because of their geographic separation from Nazi occupation and bombing during WWII.⁷¹ Accordingly, Clay instinctively moved quickly to stamp out rape and looting in the American zone.⁷²

By 1948, the exhilaration of the victory over the Axis had subsided, and Germany increasingly was viewed, especially by Clay, as a potential ally in the emerging struggle against communism.⁷³ He understood that currency reform and the creation of the Federal Republic were key drivers of German and European economic recovery.⁷⁴ Clay resisted Washington's strong-arm measures such as food collection and hidden war reparations, and even encouraged Berlin food strikes as a positive demonstration of democracy.⁷⁵ Clay and British Foreign Secretary Ernest Bevin correctly perceived Soviet intentions and stood firm against misgivings in Washington, Paris and the UN, and ultimately prevailed.⁷⁶

Clay believed the Russians were testing the Western Powers.⁷⁷ Smith explains, "When Marshal Sokolovsky walked out of the Allied Control Council on March 20, Clay had worried that it was preparatory to ordering the Western powers from Berlin. But the

69. Plating, *The Hump*, 13.

70. Tusa, *The Berlin Airlift*, 58.

71. Tusa, *The Berlin Airlift*, 58.

72. Tusa, *The Berlin Airlift*, 58.

73. Smith, *Lucius D. Clay*, 452.

74. Smith, *Lucius D. Clay*, 481.

75. Smith, *Lucius D. Clay*, 453, 454.

76. Smith, *Lucius D. Clay*, 463.

77. Gosnell, *Truman's Crises*, 359.

Russians never did that. They never escalated the crisis to the point of a final showdown. That convinced Clay that the Soviets did not want war. They were pressing to see how far they could go, but were clearly unwilling to risk actual hostilities.” Likewise, Clay was able to identify Soviet deception in August 1948 when negotiations with Moscow broke down over issues of currency control.⁷⁸ Clay was able to finally report to Washington that the Berlin currency issue was a ruse and the blockade would continue until the US abandoned its plans for a West German Government.⁷⁹

In hindsight, Clay accurately perceived Soviet intentions in Berlin and often developed quite sound strategy, while many in Washington got it wrong.⁸⁰ Clay’s perceptions of Soviet intentions were based on his own intelligence on Russian troop movements.⁸¹ However, Clay was, at times, out of touch with the policy makers’ risk tolerances. An example was his initial recommendation to break the blockade with a military convoy supported by tanks, artillery and aircraft to traverse unimpeded the 110 miles through the Soviet zone to Berlin.⁸² In the Pentagon, cooler heads prevailed and convinced Truman it was not worth the risk of war to test Russian resolve in this fashion.⁸³ The stark difference between the US and Soviet strategy-development systems illustrates the advantages Truman enjoyed with competing paradigms, perceptions and interpretation of information in the US open system.⁸⁴

Truman immediately established sound policy for the Berlin Crisis of 1948.⁸⁵ He stated, “If we move out of Berlin we will have lost everything we are fighting for.”⁸⁶ However, his strategy for how to remain in Berlin was much less resolute and proceeded more incrementally as he gave the airlift a chance to work. Truman’s decision making process was again free from any groupthink as he entertained competing perceptions and strategies on the feasibility of a large-scale airlift.⁸⁷ Early in the crisis, Truman was

78. Smith, *Lucius D. Clay*, 517.

79. Smith, *Lucius D. Clay*, 511.

80. Tusa, *The Berlin Airlift*, xiv; Smith, *Lucius D. Clay*, 476.

81. Smith, *Lucius D. Clay*, 495.

82. Smith, *Lucius D. Clay*, 495.

83. Smith, *Lucius D. Clay*, 497.

84. Gosnell, *Truman's Crises*, 359.

85. Gosnell, *Truman's Crises*, 259.

86. Smith, *Lucius D. Clay*, 513.

87. Gosnell, *Truman's Crises*, 359; Janis, Irving, *Groupthink: Psychological Studies of Policy Decisions and Fiascoes*, (Second Edition, New York: Houghton Mifflin, 1982), 174-5.

informed by the CIA that if communications with the city were disrupted, it would be impossible to feed it by air alone.⁸⁸ In July 1948, even the Air Staff was firmly convinced that the airlift was doomed to failure.⁸⁹ Under Secretary of State Robert Lovett dismissed the airlift as an “unsatisfactory” and “temporary expedient,” and the Army staff stated, “The only logical decision” was to withdraw from Berlin before defeat became inevitable.⁹⁰ However, Truman considered all proposals and somehow recognized the limited thinking taking place in Washington.⁹¹

Meanwhile, probably unbeknownst to Truman and Clay, the Chinese were constructing a number of monuments to commemorate the moral and physical contribution of the US Hump Airmen during the war.⁹² However, Truman and Clay were aware of the Hump Airlift, its role in increasing the US military transport capacity, and its conceptual strategic implications.⁹³ As John Plating described in his 2011 book, *The Hump: America’s Strategy for Keeping China in World War II*, five major lessons from the Hump Airlift were: “airlift as an expression of airpower, the Hump as a dramatic feat of aerial logistics, the impact of the Hump in both theater and global war strategy, airlift as an expression of the ‘national-ness’ of airpower, and airlift as the means for facilitating a paradigm shift in global logistics.”⁹⁴ Truman understood that Air Transport Command (ATC) was a worldwide airline with tremendous capacity of which the Hump was only a part.⁹⁵ Further, ATC demonstrated a capacity for further efficacy by improving the sequencing of traffic with new Ground-Controlled-Approach (GCA) technology, efficiency of cargo loading and unloading operations, and the pace of aircraft inspection and repair.⁹⁶ Accordingly, Truman ultimately sided with Clay and against most of Washington.⁹⁷

Clay was personally committed to ensuring German resolve prior to attempting the airlift. In an interview with Smith, Clay stated: “The first thing I did after I knew we

88. Tusa, *The Berlin Airlift*, 88.

89. Smith, *Lucius D. Clay*, 513.

90. Smith, *Lucius D. Clay*, 513.

91. Tusa, *The Berlin Airlift*, 115.

92. Plating, *The Hump*, 247-8.

93. Plating, *The Hump*, 245.

94. Plating, *The Hump*, 241.

95. Plating, *The Hump*, 247.

96. Tusa, *The Berlin Airlift*, 184; Plating, *The Hump*, 246.

97. Smith, *Lucius D. Clay*, 513.

could land enough airplanes was to send for Mayor Reuter. He came in, and I said to him, “before I go ahead now with my final recommendation, I want you to know this: No matter what we may do, the Berliners are going to be short of fuel. They are going to be short of electricity. I don’t believe they are going to be short of food. But I am sure there are going to be times when they are going to be very cold, and feel very miserable. Unless they are willing to take this and stay with us, we can’t win this. If we are subjecting them to a type and kind of treatment which they are unwilling to stand and they break on us, our whole lift will have failed. And I don’t want to go into it unless you understand that fully, unless you are convinced that the Berliners will take it.” Reuter responded without any hesitations, “General, I can assure you, and I do assure you, that the Berliners will take it.”⁹⁸ Clay remained committed to the West Berliners for the duration of the airlift. He refused to authorize the evacuation of US military dependents, increased food rations in response to instability, and ultimately reversed the Berliner’s precarious confidence in the Western Allies.⁹⁹

Clearly, Truman’s assessment of opportunities introduced by developments in airlift capability proved accurate. Leveraging the airlift capacity demonstrated during the Hump, the newly minted USAF produced accurate assessments of airlift possibilities for decision makers.¹⁰⁰ While operational and tactical brilliance proved vital to the airlift’s success, Truman’s initial perception of the technology’s capacity proved invaluable.¹⁰¹ As the airlift grew, so did strategic ambitions.¹⁰²

US Perceptions of Each Actor’s Goals

Soviet and US grand strategic goals were properly assessed by both nations. Despite a shared desire for a united Germany, both nations generally treated the crisis with power-oriented strategies.¹⁰³ However, both also deliberately avoided escalation that would have required a transition to survival-oriented strategies.¹⁰⁴ The US recognized its power could be increased through a partnership with a strong West

98. Smith, *Lucius D. Clay*, 501.

99. Tusa, *The Berlin Airlift*, 110; Smith, *Lucius D. Clay*, 468.

100. Plating, *The Hump*, 13.

101. Plating, *The Hump*, 13.

102. Tusa, *The Berlin Airlift*, 168.

103. Tusa, *The Berlin Airlift*, 84-5.

104. Murray, Sinnreich, and Lacey, *The Shaping of Grand Strategy*, 33.

Germany.¹⁰⁵ The US plan entailed deliberate, thorough de-Nazification, followed by the creation of a two-house legislative assembly, an executive committee responsible to the legislature, a high court of justice, and a central bank with a West German currency.¹⁰⁶

Likewise, both nations correctly perceived that goals were to be pursued via coercion rather than brute force.¹⁰⁷ Despite the imperfect realization in the West of the Soviet Union's real fears and aims, the common assumption, not only among the people but also politicians, was that the Soviets wanted to push the West out of Berlin.¹⁰⁸ President Truman acknowledged the Western currency reform as a "major point of contention during the discussions on the Berlin blockade," but correctly identified the real point of contention.¹⁰⁹ He wrote, "In the face of our launching of the Marshall Plan, the Kremlin tried to mislead the people of Europe into believing that our interest and support would not extend beyond economic matters and that we would back away from any military risks."¹¹⁰ Truman knew Stalin was determined to force the US out of Berlin as an "international counterattack" to recent setbacks in Italy, France, Finland and Yugoslavia.¹¹¹

Clay clearly conveyed US goals in an interview with biographer Jean Smith many years after the crisis: "If we had withdrawn from Berlin, which we would have had to do without the airlift, I don't think we could have stayed in Europe. I doubt if there would have been a Marshall Plan. I doubt if there would have been a NATO."¹¹² He was convinced that a US withdrawal from Berlin would have destroyed the confidence of the West Germans, Western Europeans, and the US.¹¹³ The degraded US posture in Western Europe would have likely started a chain of events leading to the expansion of communist influence around the world.¹¹⁴

105. Smith, *Lucius D. Clay*, 461-2.

106. Smith, *Lucius D. Clay*, 461-3.

107. Schelling, *Arms and Influence*, 5-7.

108. Ulam, *Stalin*, 686-8.

109. Truman, *Memoirs*, 123.

110. Truman, *Memoirs*, 123.

111. Truman, *Memoirs*, 123.

112. Smith, *Lucius D. Clay*, 505-6.

113. Smith, *Lucius D. Clay*, 505-6.

114. Smith, *Lucius D. Clay*, 505-6.

US Perceptions of Each Actor's Options (IOPs) for Addressing the Crisis

US officials' perceptions of available options to Truman and Stalin were often inaccurate. However, the free exchange of these perceptions afforded Truman the ability to properly consider the entire range of perceived options. In determining each actor's perceived options, Truman properly assessed relevant legal, ethical and political limitations. Likewise, he adequately considered other influences such as organizational behavior, governmental politics, and Waltz's three images.

Early in the crisis, continued talks with the Soviets consistently failed because, in Stalin's mind, all the blame was on the US side, and the US could only accept the Soviet position in its entirety.¹¹⁵ Accordingly, the perceived US options for addressing the crisis were to retreat, issue an ultimatum, or buy time to exercise diplomacy.¹¹⁶ Retreating from Berlin would have likely impeded the Marshall Plan but was the only option that avoided all chances of escalation. Issuing an ultimatum to the Soviets would have essentially involved calling Stalin's bluff and carried substantial risk of precipitating WWII.¹¹⁷ The most dynamic of options was an attempt to use creative means to buy time and allow for diplomacy to work.¹¹⁸

Truman was pressured to retreat by much of official Washington. Some officials fretted over the US's legal right to be in Berlin given the lack of written documentation on allied access agreements.¹¹⁹ On April 10, 1948, a teleconference between General Omar Bradley, the Army Chief of Staff, and Clay marked the low-water mark of American resolve. Believing holding Berlin to be untenable, Bradley offered Clay a way out, suggesting the US announce the withdrawal to minimize the loss of prestige.¹²⁰ Unshaken, Clay told Bradley that the United States should stay unless driven out by force.¹²¹ He knew the Soviet pressure tactics were designed to intimidate the West and deter the Allies, especially France, from pressing ahead with a separate West German government.¹²² He warned Bradley that Soviet pressure would continue to intensify, but

115. Truman, *Memoirs*, 128.

116. Tusa, *The Berlin Airlift*, xiv.

117. Tusa, *The Berlin Airlift*, 174.

118. Tusa, *The Berlin Airlift*, xiv.

119. Tusa, *The Berlin Airlift*, 156.

120. Smith, *Lucius D. Clay*, 476-7.

121. Smith, *Lucius D. Clay*, 476-7.

122. Gosnell, *Truman's Crises*, 359.

stressed the US must stand firm.¹²³ Clay stated to Bradley: “We have lost Czechoslovakia. We have lost Finland. Norway is threatened. [If] We retreat from Berlin... There is no saving of prestige by setting up in Frankfurt that is not already discounted. After Berlin will come Western Germany, and our position there is relatively no greater and our position no more tenable than Berlin. If we mean to hold Europe against communism, we must not budge. We can take humiliation and pressure short of war in Berlin without losing face. If we move, our position in Europe is threatened.¹²⁴ If America does not know this, does not believe that the issue is cast now, then it never will and communism will run rampant.”¹²⁵

Clay pressured Truman to issue an ultimatum backed up by an armored convoy. However, the ensuing debate ultimately encouraged Truman to pursue other options.¹²⁶ Even Clay admitted the Russians would initially set up road blocks, the US engineers would remove them, and the Russians would then be forced to threaten the use of armed force.¹²⁷ Such risk of escalation was unacceptable to Truman.

The option to buy time using an airlift began to gain momentum in the Royal Air Force (RAF) first.¹²⁸ Smith states, “Air Commodore Waite (RAF) quickly concluded that it might be possible to supply the city, at least for a short time, and persuaded [General Sir Brian] Robertson (RAF) to discuss the matter with Clay.”¹²⁹ When briefed on the airlift in June 1948, Clay was still wedded to the idea of forcing a column along the autobahn and skeptical of the airlift option. While Clay had already instructed Commander of USAF Europe General Curtis LeMay to begin flying supplies into Berlin from Frankfurt for the US garrison, he considered it a stopgap measure and doubted the technical feasibility of supplying a city of 2.2 million people by air.¹³⁰ However, within a matter of hours, Robertson had convinced Clay.¹³¹

123. Smith, *Lucius D. Clay*, 476-7.

124. Tusa, *The Berlin Airlift*, 119.

125. Smith, *Lucius D. Clay*, 476-7.

126. Smith, *Lucius D. Clay*, 497.

127. Truman, *Memoirs*, 125.

128. Smith, *Lucius D. Clay*, 500-501.

129. Tunner, *The Berlin Airlift*, 158; Smith, *Lucius D. Clay*, 500-501.

130. Tunner, *The Berlin Airlift*, 158; Smith, *Lucius D. Clay*, 500-501.

131. Smith, *Lucius D. Clay*, 500-501.

However, to convince Washington, Clay needed to show that he could land 450 planes in Berlin each day.¹³² He assessed the number of available aircraft, confirmed with LeMay that coal could be airlifted, and with the help of Generals Vandenberg and Wedemeyer, recruited the Hump Airlift mastermind, General William Tunner, to run the operation.¹³³ Remarkably, the airlift was established in just a few short months.¹³⁴ Tunner reassembled much of his “hand-picked” staff from India to manage operations in Germany including Chief Pilot Colonel Robert “Red” Forman, cargo manager Major Edward Guibert, communications officer Lieutenant Colonel (Lt Col) Manuel Fernandez, supply officer Lt Col Orval McMahon, civil engineer Lt Col Kenneth Swallow, public-information officer Captain Raymond Towne, and maintenance officer Captain Jules Prevost.¹³⁵ These leaders superimposed the same operational template on the Berlin Airlift as was used in China.¹³⁶ The tonnage at that point was only nine hundred tons per day and not enough to keep the city alive.¹³⁷ However, as the C-54s became available, Tunner was able to achieve the required tonnages.¹³⁸

Yet, by September of 1948, the capacity of the airlift was still not proven, most American policy-makers remained skeptical, and Truman was still undecided.¹³⁹ The Soviets believed that time was on their side and the airlift couldn’t supply Berlin once winter weather deteriorated.¹⁴⁰ Still the airlift remained the only practical western answer to the Berlin problem.¹⁴¹ Clay was convinced the airlift would succeed given enough airplanes and kept LeMay and Tunner working on improving aircraft turnaround times to build up supplies in Berlin before winter.¹⁴² Additionally, Clay went to work in Berlin. He and Tunner led 30,000 Berliners to construct a new airfield by hand in only two months.¹⁴³ More importantly, he continued to measure and build the resolve of the

132. Smith, *Lucius D. Clay*, 500-501.

133. Tunner, *The Berlin Airlift*, 162; Plating, *The Hump*, 105.

134. Plating, *The Hump*, 246.

135. Tunner, *The Berlin Airlift*, 163-4; Plating, *The Hump*, 246.

136. Plating, *The Hump*, 246.

137. Smith, *Lucius D. Clay*, 500-501.

138. Smith, *Lucius D. Clay*, 500-501.

139. Smith, *Lucius D. Clay*, 519.

140. Smith, *Lucius D. Clay*, 517.

141. Tusa, *The Berlin Airlift*, 233.

142. Plating, *The Hump*, 246.

143. Tunner, *The Berlin Airlift*, 211-12; Smith, *Lucius D. Clay*, 517.

Berliners.¹⁴⁴ Even when Reuter admitted he still doubted the city could be supplied solely by air, he remained determined to resist a Communist takeover regardless of costs.¹⁴⁵ Clay described Reuter as a courageous man with the people of Berlin behind him, and used him to convince the US policy makers that the Berliners “could take it.”¹⁴⁶

Truman’s assessment of USAF organizational behavior was also accurate. His perception of airlift capabilities as presented by Clay, LeMay and Tunner was both timely and critical to his decision to fully commit the new “soft” airpower. One key enabler of this accurate perception was effective coordination. At various decision points during the crisis, the best recommendations reached Truman from different governmental agencies. Likewise, decentralization of the airlift’s command and control proved critical in enabling its evolution from a military instrument to buy time for diplomacy into a diplomatic instrument in and of itself. While Clay asked for and was denied permission to deploy an armored convoy, he never felt he needed to ask Washington’s permission to begin the airlift.¹⁴⁷ The capacity of airlift was demonstrated in these early months, and provided Truman the vital evidence required to justify committing every plane available to feed Berlin until the diplomatic deadlock was broken.¹⁴⁸

Clay confronted impediments to military organizational behavior on several instances. One was when Secretary of the Army Kenneth Royall attempted to usurp Clay’s control of the airlift. He demanded that under no circumstances could Clay shoot down Russian barrage balloons in the air corridors without first obtaining a clearance from the Department of the Army.¹⁴⁹ Clay responded, “I fully understand the desire of our government not to start shooting nor to develop an incident that may lead to war. Nevertheless, this situation is one which can be handled only with some power of decision in the theater commander’s hands. My British opposite has the requisite authority. I think it is extremely important that we be in a position so that we may act together. I must, therefore, request that my present discretionary authority not be curtailed. I cannot take the responsibility of requiring our air crews to undertake what

144. Smith, *Lucius D. Clay*, 502.

145. Smith, *Lucius D. Clay*, 502.

146. Smith, *Lucius D. Clay*, 502.

147. Truman, *Memoirs*, 123.

148. Truman, *Memoirs*, 123.

149. Smith, *Lucius D. Clay*, 509-10.

may develop into hazardous flights unless I have the authority to take appropriate action.”¹⁵⁰ Clay emphasized the criticality of discretionary authority to the successful accomplishment of his mission and told the Pentagon that if he couldn’t be trusted he should be relieved.¹⁵¹ With no reply from Washington, Clay’s discretionary authority was not curtailed.

However, interagency coordination did at times complicate US perceptions due to the common adverse effects of governmental politics. While Truman was able to resist some governmental tendencies toward irrational cognitive consistency, even Clay made errors. In a famous message to Lt Gen Chamberlin, as a favor, he attempted to provide him a confidential message to use in congressional testimony to reinstitute the draft. Clay wrote, “For many months, based on logical analysis, I have felt and held that war was unlikely for at least ten years. Within the last few weeks, I have felt a subtle change in Soviet attitude which I cannot define but which now gives me a feeling that it may come with dramatic suddenness.”¹⁵² Unfortunately, the message was leaked and misunderstood as an indication of a likely and imminent Soviet attack. In the end, Clay had inadvertently created the very hysteria he sought to avoid, as the War Department again advocated the evacuation of dependents.¹⁵³ Clay always thought the chance of Soviet attack was very slim, but this message fed Washington’s cognitive consistency in regards to Soviet intentions.

Similarly, Truman’s perception of the low chance of military shirking was accurate. While General Vandenberg provided Truman strong arguments against commitment of all airlift capacity to Berlin, including strategic airpower readiness reduction, when Truman ordered, he assured “that the Air Force would devote its entire energy” and it did.¹⁵⁴ Tunner and his team realized tremendous efficiencies with innovative processes and technologies, and maintained aircrew morale throughout the “long haul.”¹⁵⁵

150. Smith, *Lucius D. Clay*, 509-10.

151. Smith, *Lucius D. Clay*, 509-10.

152. Smith, *Lucius D. Clay*, 466.

153. Smith, *Lucius D. Clay*, 468.

154. Truman, *Memoirs*, 126; Gosnell, *Truman's Crises*, 360.

155. Tunner, *The Berlin Airlift*, 178, 210.

Truman's perceptions of the implications of what were later known as Waltz's images appropriately focused on those dealing with the structure of the state and anarchic international environment. US statements and actions had to uphold the prestige and credibility of democracy while promoting a sense of unity among Western democracies. Clay expressed the chosen US position when he stated, "If we mean to restore a democratic Germany which will resist the penetration of communism; if, in fact, we wish to bring that Western Germany into the comity of western nations, then we must do it with two hands that offer friendship rather than one hand carrying flowers while the other wields a big stick."¹⁵⁶ He understood that the airlift was a spectacular success, not because it was an airlift, but because the US succeeded in keeping a city of several million people alive over a long period of time.¹⁵⁷ These results, most importantly, demonstrated US commitment to its European allies.

US Perceptions of Each Actor's Strategic Costs, Benefits and Best Options

As presented above, Truman was presented with many perspectives on what were the best courses of action. Each option carried perceived costs and benefits with varied probabilities of success. Many of the costs and benefits also hinged on perceptions of Stalin's own cost-benefit analysis and associated perceptions. Here, the US open system had a distinct advantage over Stalin's.

Cost-benefit calculus is essentially the alignment of goals against various options, each with four variables: benefit, probability of benefit, costs, and probability of costs. As each of these variables hinges on perceptions of the adversaries' own calculus, the US's more open decision-making system afforded Truman a distinct advantage over Stalin. Stalin underestimated the costs and their probabilities associated with blockading Berlin. These costs, now recorded in history, were known to many Soviets, but Stalin was not receptive to competing perspectives. Truman, however, was able to carefully weigh competing perceptions with continual cost-benefit analysis to make better-informed decisions. The decision to not withdraw was enabled by adequately assessing the costs and cost probabilities that would come in Europe's future. The decision not to force an armored convoy into Berlin was enabled by adequately assessing the marginal

156. Smith, *Lucius D. Clay*, 494.

157. Smith, *Lucius D. Clay*, 505-6.

benefit against the tremendous potential costs. Finally, the decision to buy time with an airlift was enabled by properly assessing the probability of benefit and relatively low cost as compared to the other options. In each decision, Truman's accurate cost-benefit analysis can be attributed to the full consideration of all paradigms, perceptions, and interpretation of information within the US open decision making system, its presentation of all options available, and its variables' relatively strong confidence intervals.

Truman's cost-benefit analysis effectively balanced perceived opportunity costs, information asymmetry, marginal returns, substitution, and missing information. Opportunity costs associated with the tremendous airlift effort were highlighted by General Vandenberg who reported that the maximum airlift would involve using planes intended for emergency use, many of which might be destroyed if hostilities ensued.¹⁵⁸ The airlift could have adversely affected the US capabilities to wage strategic warfare because the concentration of aircraft necessary to provide Berlin with all its supplies by air meant reducing US air strength elsewhere, both in planes and in personnel.¹⁵⁹ Furthermore, Vandenberg suggested that the US saturation of airplanes into Berlin could prove expensive and costly in lives of pilots while providing the Soviets with the argument that the US was trying to force them out of Berlin.¹⁶⁰ However, as argued by Clay, Truman determined that the Soviets would not attack our planes unless they had made the decision to go to war.¹⁶¹

Conclusion

On June 28, 1948, Truman declared that the US was to stay in Berlin, the city would be supplied by air, and US air strength in Europe would be reinforced.¹⁶² In his personal journal, he wrote, "We'll stay in Berlin—come what may...I don't pass the buck, nor do I alibi out of any decision I make."¹⁶³ He acknowledged the advantage of keeping the Berlin situation before the world's attention and used every feasible device of diplomatic exchange, publicity and appeal.¹⁶⁴ He stressed the importance of such

158. Truman, *Memoirs*, 125; Gosnell, *Truman's Crises*, 360.

159. Truman, *Memoirs*, 125.

160. Gosnell, *Truman's Crises*, 429; Truman, *Memoirs*, 125.

161. Truman, *Memoirs*, 125; Gosnell, *Truman's Crises*, 545.

162. Gosnell, *Truman's Crises*, 545.

163. McCullough, *Truman*, 647.

164. Smith, *Lucius D. Clay*, 508.

measures to avoid war.¹⁶⁵ Likewise, Truman decided on the less-risky airlift instead of a ground convoy because if Stalin resisted the convoy, the world would likely plunge into war.¹⁶⁶ Truman's calculus proved accurate as the Western Allies' use of airlift as a nonlethal form of airpower forced a determined Stalin to capitulate before Western cost and duration limits were reached.

Truman explained, "The battle of diplomacy [in the U.N.] was overshadowed by the drama of the aerial convoys that day after day winged their way into Berlin."¹⁶⁷ By mid-October Clay validated Truman's assessment acknowledging that airlift was a proven conclusion, no longer an experiment. Even adverse weather did not keep US planes from supplying the western zones of blockaded Berlin.¹⁶⁸ Tunner insisted on the open publication of the tonnage entering Berlin and successes like Operation Little Vittles as a "propaganda weapon to be held up before the whole world."¹⁶⁹ Truman's perspective of the West Berliners' resolve as a critical center of gravity was validated as the airlift proved to be a tremendous boost to morale. Truman explains, "They had closed ranks and applied themselves to the tasks of reconstruction with new vigor. It had turned them sharply against communism. Germany, which had been waiting passively to see where it should cast its lot for the future, was veering toward the cause of the Western nations."¹⁷⁰ By October, nine out of ten polled Berliners staunchly declared that they preferred blockade conditions to communist rule.¹⁷¹ After fourteen months of being supplied only by air, Berlin had become a symbol of America's dedication to the cause of freedom.¹⁷² The US refused to be forced out of Berlin and effectively demonstrated to the people of Europe that with their cooperation, the US would act resolutely when their freedom was threatened.¹⁷³ Accordingly, the crisis brought the peoples of Western Europe more closely to the US.¹⁷⁴

165. Smith, *Lucius D. Clay*, 508.

166. Truman, *Memoirs*, 126; Gosnell, *Truman's Crises*, 360, 562.

167. Truman, *Memoirs*, 129.

168. Truman, *Memoirs*, 129.

169. Tunner, *The Berlin Airlift*, 180, 207; Tusa, *The Berlin Airlift*, 268.

170. Truman, *Memoirs*, 129.

171. Tusa, *The Berlin Airlift*, 265.

172. Truman, *Memoirs*, 130.

173. Truman, *Memoirs*, 130.

174. Truman, *Memoirs*, 131.

The US and Soviet strategic decisions during the Berlin Crisis of 1948 were analyzed using the PPI-focused RAM presented in Chapter 1. The RAM offers utility in its explanation of much of why the US got it right while Stalin got it wrong. Any argument to the contrary could be simply countered by considering historical implications had Stalin employed paradigmatic and perceptual pitfall avoidance strategies suggested by Thomas Kuhn, Robert Jervis, and Graham Allison. Likewise, it is hard to imagine Truman arriving at his key strategic decisions without a misstep had he not used an open system with careful cost-benefit analysis based on paradigms and perceptions providing relatively strong confidence intervals. Figure 2 illustrates a PPI-RAM scorecard of estimated accuracy of paradigms, perceptions and interpretation of information driving US and Soviet strategic decisions. Green scores indicate generally accurate PPI given the evidence provided, yellow indicates partially accurate PPI, and red indicates inaccurate PPI.

This case study of the Berlin Crisis of 1948 provides evidence in support of the explanatory utility of a PPI-focused RAM in the development of strategy. Next, the Cuban Missile Crisis will be analyzed with the same lens to again test the utility of the PPI-focused RAM. In the Berlin case study, Khrushchev's perspective of Stalin's strategic errors provided evidence in support of the model. Ironically, his own inaccurate PPI fourteen years later during the Cuban Missile Crisis may provide even more compelling evidence.

CHAPTER 3

Cuban Missile Crisis Analysis with PPI-Focused RAM

Many historians and strategic theorists have dissected the Cuban Missile Crisis from various viewpoints. Some, like Graham Allison and Philip Zelikow in their 1999 book *Essence of Decision; Explaining the Cuban Missile Crisis*, have synthesized lessons from the crisis to better understand strategic decision making. This analysis will seek to do the same. However, while Allison and Zelikow make a case for additional models required to supplement the RAM, this analysis looks to validate the explanatory utility of a single, PPI-focused RAM.

The 1962 Cuban Missile Crisis was one of the most critical events in US and world history. In September 1962, the Soviet Union clandestinely deployed nuclear missiles to Cuba. On October 14, an American U-2 spy plane photographed the Soviet missile bases. On 22 October, President Kennedy initiated a public confrontation by announcing the Soviet action to the world, demanding Soviet removal of the missiles, ordering a US quarantine of Soviet offensive weapon shipments to Cuba, putting US strategic forces on alert, and warning the Soviet Union that any missile launched from Cuba would be regarded as a Soviet attack and met with full retaliatory response. On 23 October, Khrushchev ordered Soviet strategic forces to alert and threatened to sink US ships if they interfered with Soviet ships en route to Cuba. On 24 October, Soviet ships stopped short of the US quarantine line. On 26 October, Khrushchev sent a private letter stating the Soviet deployment would disappear if the US would pledge not to invade Cuba. On 27 October, he sent a second, public letter demanding US withdrawal of Turkish missiles for the Soviet withdrawal of the missiles in Cuba. The same day, the US responded affirmatively to the first letter with conditions that the missiles in Cuba be immediately rendered inoperable. Robert Kennedy added privately that the missiles in Turkey would be eventually be withdrawn but a commitment to remove the missiles in Cuba must be received the next day or military action would follow.¹ On 28 October,

1. Dobbs, Michael, *One Minute to Midnight; Kennedy, Khrushchev, and Castro on the Brink of Nuclear War*, (New York: Alfred A. Knopf, a division of Random House, Inc., 2008), 324.

Khrushchev publicly announced that the USSR would withdraw its missiles from Cuba.² Throughout the crisis, the issue was not whether Kennedy and Khrushchev wanted to control events; it was whether or not they could.³ Kennedy initially wanted to bomb Soviet missile sites in Cuba and Khrushchev delegated control of tactical nuclear weapons designed to decimate US troops to local commanders. Either option, if executed, could have easily led to full-scale nuclear war.⁴

The PPI-focused RAM presented in Chapter 1 will explicate the paradigms, perceptions and interpretation of information that drove strategic decision making during the crisis. This approach, from both the Soviet and US perspectives, will again validate the explanatory utility of the PPI-focused RAM.

Circumstances Soviets Perceived as Threats and Opportunities

During the Cuban Missile Crisis, the Soviets' flawed decision-making process and equally flawed process of implementation can be partially explained by their perceptions of existing threats and opportunities.⁵ In the end, events had unfolded much differently than Khrushchev expected and he found himself forced to choose between possible nuclear war and personal humiliation.⁶ Even today, what Khrushchev intended to do with his missiles in Cuba is unclear.⁷ However, his tendency to not think things through is well documented.⁸ It was irrational, or at least ignorant, to expect the Americans not to respond to his secret deployment of missiles given clearly stated US policy and Khrushchev's overt deception.⁹ While the intermediate-range missiles may have been solely for Cuba's protection as Khrushchev maintained, he also secretly dispatched short-range missiles equipped with nuclear warheads that threatened to lead to uncontrollable escalation.¹⁰ The US didn't expect them and they were under control of local commanders who could, in response to an invasion, have authorized their use.¹¹ As

2. Allison, Graham T, and Philip Zelikow, *Essence of Decision: Explaining the Cuban Missile Crisis*, (New York [etc.]: Longman, 1999), 394.

3. Dobbs, *One Minute to Midnight*, xvi.

4. Dobbs, *One Minute to Midnight*, 35.

5. Taubman, *Khrushchev*, 547.

6. Dobbs, *One Minute to Midnight*, 321.

7. Gaddis, *The Cold War*, 77.

8. Gaddis, *The Cold War*, 77.

9. Gaddis, *The Cold War*, 77.

10. Gaddis, *The Cold War*, 77.

11. Gaddis, *The Cold War*, 77.

John Gaddis explains in his 2005 book, *The Cold War: A New History*, “Khrushchev allowed his ideological romanticism to overrun whatever capacity he had for strategic analysis...emotionally committed to the Castro revolution...he was like a petulant child playing with a loaded gun.”¹²

Inaccurate Soviet strategic paradigms also led to poor strategic decision making. Soviet Defense Minister Rodion Malinovsky later explained that in the spring of 1962, Khrushchev and his colleagues felt that “our inferior position was impossible to us.”¹³ Khrushchev stated, “We knew the class affiliation, the class blindness of the US, and that was enough to make us expect [continued interference in Cuba].”¹⁴ The Turkish missiles provided Khrushchev a means to rationalize the deployment of missiles to Cuba, as he claimed it was time for America to learn what it felt like to have its land and people threatened from its own backyard.¹⁵ He saw Cuba as a way to target the soft underbelly of the Americans.¹⁶ However, such a paradigm without regard for US perceptions prompted an escalatory crisis. The JCS called Khrushchev’s targeting “a knife stuck right in our guts.”¹⁷

Other inaccurate paradigms existed within the Soviet military. From the perspective of the Soviet military commanders, their mission was to fight and win battles, and to do so they could not reveal weapons to the enemy and spoil a nuclear ambush.¹⁸ Gribkov exposes this alarmingly shortsighted paradigm in *The View from Moscow and Havana*: “Arcane theories of deterrence mattered less to us than practical questions of assuring our exposed troops the strongest possible armor against attack.”¹⁹ However, the US observed the exposed missiles and the US reaction to Soviet actions kicked off the Cuban Missile Crisis and sent the Soviets reeling into strategic paradigmatic revolution.²⁰ This new way of thinking was exemplified by Khrushchev’s new logic of war: “If indeed

12. Gaddis, *The Cold War* 77-8.

13. May, Ernest R. and Philip D Zelikow, *The Kennedy Tapes; Inside the White House During the Cuban Missile Crisis*, (Cambridge: Harvard University Press, 1997), 674-5.

14. Khrushchev, 510-11.

15. May and Zelikow, *The Kennedy Tapes*, 674-5.

16. May and Zelikow, *The Kennedy Tapes*, 674-5.

17. May and Zelikow, *The Kennedy Tapes*, 674-5.

18. Gribkov, *The View from Moscow and Havana*, p. 28.

19. Allison and Zelikow, *Essence of Decision*, 217; Gribkov, p. 28.

20. Kuhn, Thomas S, *The Structure of Scientific Revolutions*, (Chicago: The University of Chicago Press, 1962), 66, 77.

war should break out, then it would not be in our power to stop it, for such is the logic of war.”²¹

In his memoirs, Khrushchev claimed that Soviet perceptions of US threats were the sole reason for placing missiles in Cuba; to defend the island, not threaten the US.²² He claimed the Soviets’ intention was to install the missiles not to wage war against the US, but to prevent the US from invading Cuba and thus starting a war.²³ He explained the Soviet desire to give the new “progressive system created in Cuba by Fidel Castro a chance to work.”²⁴ He claimed that he had information that the American government had pledged itself to organize a better-trained and better-equipped landing force.²⁵ He expected the force would be supported by American forces and the US would justify the whole thing as an internal struggle within Cuba.²⁶ He believed the Americans wanted to force Cuba away from the path of socialism and “make it drag behind American policy.”²⁷ He felt the Soviet Union had no other way of helping Cuba meet the American threat except to install Soviet missiles on the island.²⁸ He argues, “It would have been preposterous for us to unleash a war against the US from Cuba, 11,000 kilometers away. Our sea and air communications with Cuba were so precarious that an attack against the US was unthinkable.”²⁹ He stated that Cuba’s defense was the Soviet focus throughout the crisis and that the deal for US missiles in Turkey was only symbolic in nature.³⁰ He claimed to be proud of what the Soviet Union did and looked back on the episode with pride in his people, in the policies they conducted, and in the “victories” they won on the diplomatic front.³¹

However, Khrushchev’s explanation of perceived Soviet threats was plagued with errors. First, if Cuba’s defense was the priority, why did he also speak of giving the US

21. Allison and Zelikow, *Essence of Decision*, 81, 111, 237.

22. Khrushchev, Nikita, *Khrushchev Remembers; The Last Testament*, Translated and Edited by Strobe Talbott, (Little Brown and Company (Inc.), 1974), 509-10; Allison and Zelikow, *Essence of Decision*, 82.

23. Khrushchev, *Khrushchev Remembers*, 509-11.

24. Khrushchev, *Khrushchev Remembers*, 509-11.

25. Khrushchev, *Khrushchev Remembers*, 509-11.

26. Khrushchev, *Khrushchev Remembers*, 509-11.

27. Khrushchev, *Khrushchev Remembers*, 509-11.

28. Khrushchev, *Khrushchev Remembers*, 509-11.

29. Khrushchev, *Khrushchev Remembers*, 511-12.

30. Khrushchev, *Khrushchev Remembers*, 512.

31. Khrushchev, *Khrushchev Remembers*, 512; Dobbs, *One Minute to Midnight*, 199.

some of their own medicine?³² Why couldn't the Soviets overtly deploy a trip-wire, conventional force like US forces in Berlin or only tactical, defensive nuclear weapons? And probably most importantly, why did the Soviets neglect US cultural, cognitive and ego-psychological perceptions at play? The Cuban Missile Crisis was a result of Khrushchev's inability to anticipate new threats to the USSR prompted by Soviet actions in Cuba.

The crisis' largest threat, that of uncontrolled escalation, was heightened by several of Khrushchev's significant strategic errors. One of the largest was the deployment and loose control of Soviet short-range nuclear systems. These included twelve Luna missiles capable of dropping twelve two-kiloton warheads on invading American troops up to a range of twenty-five miles. Khrushchev's initial instructions allowed these weapons to be fired without checking with Moscow, but that authorization, conveyed orally, was rescinded on 22 October.³³ However, in the fire of war, nobody knew if they would be used. If a desperate group of Soviet defenders armed and fired a Luna warhead, with a yield one-tenth that of the bomb dropped on Hiroshima, or one of the more powerful charges, and killed thousands of US troops in an atomic blast, would that have been the last shot of the Cuban Missile Crisis or the first of global nuclear war?³⁴ On 27 October, Khrushchev finally perceived this larger threat which he had himself created by prompting the crisis. Khrushchev ultimately removed the missiles due to fear of escalation, punctuated by seven events that occurred on 27 October: the public White House statement rejecting Khrushchev's Turkey-Cuba broadcast; the US message to the UN clarifying where the US would intercept further Soviet ships bound for Cuba; the Pentagon announcement of continued Cuba surveillance despite attacks on American aircraft; the US message to the UN secretary general giving a negative answer to Khrushchev's proposed trade; Kennedy's public letter sent to Khrushchev giving a positive reply to Khrushchev's private suggestion of the day before, offering a pledge not to invade Cuba in exchange for removal of the missiles; and McNamara's press conference calling up reserve air squadrons to further prepare for an invasion.³⁵

32. Taubman, *Khrushchev*, 537.

33. Taubman, *Khrushchev*, 548.

34. Taubman, *Khrushchev*, 548.

35. Allison and Zelikow, *Essence of Decision*, 128-30.

Khrushchev's perceived opportunities were also plagued by errors. Khrushchev expected the action to present zero-sum relative gains for the Soviet Union, but the American response quickly transformed the situation into a negative-sum conflict with shared absolute costs. These misperceptions of Soviet opportunities were driven by Khrushchev's domestic and personal position in 1962. He had just lost the leverage of perceived strategic nuclear superiority.³⁶ He was besieged by troubles, increasingly irritated as setbacks mounted, determined to prove himself both to his colleagues and to himself, and ready to lash out and take risks to regain the initiative.³⁷ The Cuban missiles were to be his cure-all, but they turned out to cure nothing.³⁸

The perceived prevalence of balance-of-power politics presents three other hypotheses as to why Khrushchev deployed the missiles to Cuba. First, cold war politics offers the context of the great-power global rivalry between US values and interests and the Soviet Union's communist agenda.³⁹ Khrushchev's primary motivator could have simply been to spread revolution throughout Latin America.⁴⁰ He admits in his memoirs that the fate of Cuba and the maintenance of Soviet prestige in that part of the world preoccupied him. He desperately desired a tangible and effective deterrent to American interference in the Caribbean. In his memoirs, written many years later, he still claimed "the logical answer was missiles."⁴¹ In hindsight, one would think he would have reflected on the potentially cataclysmic crisis as an illogical price for such aims.

Second, Khrushchev's primary motivator could have been to improve the Soviet Union's strategic missile power relative to the US.⁴² Khrushchev stated, "In addition to protecting Cuba, our missiles would have equalized what the West likes to call the balance of power...we Russians have suffered three wars over the last half century...America has never had to fight a war on her own soil...and made a fortune as a result. America has made billions by bleeding the rest of the world."⁴³ Even more directly, he challenged Stewart Udall, the US Secretary of the Interior, while on a

36. Taubman, *Khrushchev*, 536.

37. Taubman, *Khrushchev*, 532.

38. Taubman, *Khrushchev*, 532.

39. Allison and Zelikow, *Essence of Decision*, 88.

40. Gaddis, *The Cold War*, 75.

41. Taubman, *Khrushchev*, 546.

42. Allison and Zelikow, *Essence of Decision*, 91.

43. Taubman, *Khrushchev*, 537.

Russian tour in Pitsunda, “It’s been a long time since you could spank us like a little boy. Now we can swat your ass.”⁴⁴ He also spoke of giving Americans nothing more than a little of their own medicine.⁴⁵ In his mind, the US could hardly object, because during the late 1950s the Eisenhower administration had placed its own intermediate-range missiles in Britain, Italy, and Turkey, all aimed at the Soviet Union.⁴⁶ While Khrushchev’s perceptions may have been rational in his mind, he failed to consider the simple fact that he was the one making the move and it was the American perspectives that would drive the US response.

Third, Khrushchev’s primary motivator could have been to use Cuba for leverage in Berlin.⁴⁷ Khrushchev was on record saying, “Berlin is the testicles of the West...Every time I want to make the West scream, I squeeze on Berlin.”⁴⁸ Even if Berlin was the source of Khrushchev’s motivation during the crisis, the same ignorance of American perceptions described above leads to the same conclusions. Furthermore, the American response escalated the crisis so quickly that this move was off the table, another development unforeseen and unexpected by Khrushchev. Again, the reason can be attributed to Khrushchev’s inadequate focus on American perceptions.

Other examples of Khrushchev’s misperceptions and ignorance of US perceptions of the missiles and Soviet intentions proved critical to the outcome of the crisis. First, Khrushchev expected Washington to accept the news of the missiles in Cuba as calmly as the Soviet Union received that of the US missiles in Turkey.⁴⁹ Even when Mikoyan suggested the US wouldn’t, Khrushchev ignored his advice and wasn’t prepared for what happened.⁵⁰ The White House Tapes recorded during the Cuban Missile Crisis captured Kennedy’s perception of the missiles in Cuba versus those in Turkey:

Kennedy: Why does he put these [missiles] in there though? ...But what is the advantage of that? It’s just as if we suddenly began to put a major number of MRBMs in Turkey. Now that’d be goddamn dangerous, I would think.

44. Taubman, *Khrushchev*, 539.

45. Taubman, *Khrushchev*, 537.

46. Gaddis, *The Cold War*, 76.

47. Allison and Zelikow, *Essence of Decision*, 91.

48. Dobbs, *One Minute to Midnight*, 215.

49. Taubman, *Khrushchev*, 541.

50. Taubman, *Khrushchev*, 541.

Bundy: Well, we did, Mr. President

Kennedy: Yeah, but that was 5 years ago.

Johnson: We did it. We did it in England.

Kennedy: But that was during a different period then.⁵¹

Clearly, this was a perception that Khrushchev not only disagreed with but likely didn't even consider. While Khrushchev claims to have placed the missiles in Cuba strictly for military reasons, the issue quickly became psychological and political.⁵² Kennedy mused, "Geography doesn't make much difference," suggesting that the origination of missiles is not important during a nuclear attack.⁵³

Second, even in his memoirs many years later, Khrushchev seems to misunderstand the US perception of him. Beginning in Vienna, he tried to convince the US that he was unpredictable and dangerous. Khrushchev deliberately acted as though he did not share Kennedy's alarm about the risks of nuclear war and how it could be triggered by miscalculations on either side.⁵⁴ He spoke about nuclear weapons as a simple component of superpower competition, saying that if the US wants war, "let it begin now."⁵⁵ However, Kennedy didn't hesitate to press Khrushchev. In fact, it was Khrushchev who "blinked" first and more.⁵⁶ Yet Khrushchev maintained that the US was somehow the evil instigator of the crisis. In an assessment of Kennedy many years later he explained, "The dying capitalist system is grasping at straws to maintain, and if possible, strengthen its position. It was in that context that the Caribbean crisis arose. We found ourselves in a serious confrontation with the President of the US. I believe Kennedy understood the situation correctly and genuinely did not want war. He realized that the time had passed when such disputes could be decided by force. He could see that the might of the socialist world equaled that of the capitalist world."⁵⁷

Third, in communications with the US, Khrushchev ignored the implications of timing and secrecy on US public opinion. Khrushchev's anger, rapid decisions, and

51. May and Zelikow, *The Kennedy Tapes*, 100.

52. Dobbs, *One Minute to Midnight*, 16.

53. Dobbs, *One Minute to Midnight*, 16.

54. Dobbs, *One Minute to Midnight*, 6.

55. Dobbs, *One Minute to Midnight*, 7.

56. Dobbs, *One Minute to Midnight*, 91.

57. Khrushchev, *Khrushchev Remembers*, 513.

disregard for US perceptions of Soviet intent complicated the crisis.⁵⁸ On 27 October, he sent a second message before the first was responded to. Likewise, when he publically added the Turkey missiles into the deal he essentially made it impossible for Kennedy to accept.⁵⁹ Finally, as the crisis was reaching an end, Kennedy was prepared to pay more, and Khrushchev was prepared to accept less, than the other required or understood. As Kennedy offered the Turkish missiles, Khrushchev was deciding to withdraw Soviet missiles from Cuba in exchange for the non-invasion pledge alone.⁶⁰

Soviet Perception of Each Actor's Goals

While the US perceptions of Soviet goals are still undetermined, Soviet perceptions of US goals were inherently obvious and known during the crisis. Khrushchev clearly desired to achieve strategic parity with the US and deeply resented American nuclear superiority.⁶¹ However, his emotions often overrode these strategic goals.⁶² Khrushchev knew that US goals were not only to remove the missiles from Cuba, but also to overthrow Castro's communist regime as indicated by the Bay of Pigs incident. Both were to be pursued as power-oriented grand strategy. However, whether the US would resort to brute force or merely use coercion was the key question Khrushchev wished he had more carefully considered as he awaited Kennedy's first public address on 22 October.

Soviet Perception of Each Actor's Options (IOPs) for Addressing the Issue

Khrushchev's perceived options when deciding to deploy the missiles to Cuba are also unknown, but some inferences can be made. He likely and accurately perceived a lack of legal, ethical and political limitations to putting missiles in Cuba. However, had Khrushchev considered the likely US response, other options that carried significantly less threat of dangerous nuclear escalation were much more rational.

One option would have been to deploy a trip-wire conventional Soviet force similar to US forces in Berlin. Another would have been to deploy only tactical, defensive nuclear weapons. A third would have been to overtly deploy the missiles. Even Castro wanted to know why, if this move was legal, the Soviets were doing it

58. Dobbs, *One Minute to Midnight*, 43.

59. Taubman, *Khrushchev*, 570; Dobbs, *One Minute to Midnight*, 290.

60. Allison and Zelikow, *Essence of Decision*, 363.

61. Dobbs, *One Minute to Midnight*, 45.

62. Dobbs, *One Minute to Midnight*, 45.

secretly, in a way that may cause a crisis.⁶³ According to Kennedy administration veterans, it was much less likely that the US government would have sought, or been able to compel, retraction of the Soviet decision and preclude deployment had they not been secretive.⁶⁴ Khrushchev's quick and disdainful dismissal of Cuban doubts was all the more revealing.⁶⁵ He told Castro and Cuban Finance Minister Che Guevara, "You don't have to worry. There will be no big reaction from the US and if there is a problem, we'll send the Baltic Fleet."⁶⁶ Castro later recalls, "He was totally serious. When he said it, Che and I looked at each other with raised eyebrows."⁶⁷ Even Soviet Foreign Policy Advisor Oleg Troyanovsky noted that the secret deployment of missiles "totally ignored the mood in the United States and the possible US reaction. It is also totally beyond my comprehension how, taking into account the tremendous scale of the operation, anyone could seriously hope to keep it secret, whereas its success hinged entirely on springing a surprise."⁶⁸ Khrushchev finally became fully aware of the errors of his reasoning on 26 October when Cuban and Soviet officials concluded that the most likely scenario was an American air strike, followed by an invasion, and likely uncontrolled escalation.⁶⁹

Some of the perceptual errors driving the secret deployment of missiles can be attributed to inadequate consideration of organizational behavior and governmental politics. Khrushchev did not perceive existing, adverse, attributes of Soviet organizational behavior driven primarily on poor communication between himself, his advisors, strategists, and military. Examples of Soviet organizational errors included: the strategic character of deployed nuclear missiles lacked both first and second strike capability; tactical nuclear weapons under local control were intended to deter an American attack but weren't revealed to the Americans and would therefore encourage escalation; an insensitivity to the possibility of U-2 observance of their operation; the failure to use SAMs when needed; the use of SAMs when not authorized; inadequate missile disguise and camouflage; and failure to construct missile sites around-the-clock.⁷⁰

63. Taubman, *Khrushchev*, 531-2.

64. Taubman, *Khrushchev*, 552-3.

65. Taubman, *Khrushchev*, 552-3.

66. Taubman, *Khrushchev*, 552-3.

67. Taubman, *Khrushchev*, 552-3.

68. Taubman, *Khrushchev*, 546.

69. Dobbs, *One Minute to Midnight*, 170.

70. Allison and Zelikow, *Essence of Decision*, 206-10.

Soviet perceptual errors in governmental politics hinged on Khrushchev's closed decision-making system, ironically something for which he later critiqued Stalin.⁷¹ Khrushchev made decisions mostly on his own and acted more from instinct than from calculation.⁷² With little experience or knowledge of foreign affairs, he built strategy around a rather simplistic version of Marxism-Leninism, and over-relied on inaccurate historical analogies such as the Suez-Hungary crises of 1956.⁷³ Khrushchev did not think things through or prepare backup plans for various contingencies.⁷⁴ He badly misjudged the American response, improvised madly, and was fortunate the crisis ended as safely as it did. Gromyko later described how he expected his boss, Khrushchev, to fly into a rage if he disagreed. While deciding to deploy missiles to Cuba, Khrushchev demonstrated an incapacity for eliciting unpleasant truths from his entourage; Khrushchev led, and his colleagues obediently followed.⁷⁵

Khrushchev also made perceptual errors in his estimation of implications of US governmental politics. Based largely on his initial impressions in Vienna, Khrushchev considered Kennedy to be a pushover, a lightweight, and a coward. He was almost certain that Kennedy would not choose war and this made him feel relatively free to provoke the US president.⁷⁶ However, he ignored his own contention that Kennedy wasn't in control of his own government. Khrushchev feared US reactionaries who he thought might cite Cuban missiles as an excuse for an all-out invasion.⁷⁷ Accordingly, Khrushchev failed to confront the contradiction at the heart of his own thinking about Kennedy.⁷⁸ He neglected possible US societal desires for cognitive consistency and their effects on Kennedy's decisions.

Once the Cuban Missile Crisis was underway, Khrushchev's options became much simpler. The American response to the missiles left Khrushchev only two questions and neither were whether or not to retreat. Khrushchev's only questions to

71. May and Zelikow, *The Kennedy Tapes*, 668-70.

72. May and Zelikow, *The Kennedy Tapes*, 668-70.

73. May and Zelikow, *The Kennedy Tapes*, 668-70.

74. Taubman, *Khrushchev*, 531-2.

75. Taubman, *Khrushchev*, 543-4, 546.

76. Taubman, *Khrushchev*, 552.

77. Taubman, *Khrushchev*, 552.

78. Taubman, *Khrushchev*, 552.

address were how to sequence the logistics for the retreat and what concessions he could extract from Washington in return.⁷⁹

Soviet Perception of Each Actor's Strategic Costs, Benefits and Best Options

Notwithstanding the perceptual errors noted above, Khrushchev did not attempt careful, deliberate cost-benefit analysis in his strategy development during the Cuban Missile Crisis. Cuban advisor Jorge Risquet noted, "It seems to us that Comrade Khrushchev did not think of all the subsequent moves that the adversary would make and the moves that he would make...Not thinking things through was typical Khrushchev, especially in his last years in power."⁸⁰ Khrushchev realized these strategic errors at 7:00 PM Moscow time on 22 October. He began second-guessing himself and exclaimed, "The thing is, we were not going to unleash war. We just wanted to intimidate them, to deter the anti-Cuban forces."⁸¹ He described the situation as tragic because instead of preventing war, his masterstroke could trigger one. "They can attack us," he blustered, "and we shall respond. This may end up in a big war."⁸² Then he began grasping at straws, suggesting the Kremlin could announce that "all the equipment belongs to the Cubans and the Cubans could announce that they will respond."⁸³ Clearly, Khrushchev's strategy development failed to carefully weigh benefits and their probabilities against costs and their probabilities in pursuit of his goals, and nearly produced disastrous results. Fortunately, Kennedy and his advisors chose to buy time with a quarantine rather than attack the forces in Cuba, who were waiting with tactical, escalatory nuclear weapons.

Circumstances the US Perceived as Threats and Opportunities

During the Cuban Missile Crisis, Kennedy and his advisers had perceptual errors but they were much less severe than those of Khrushchev.⁸⁴ Existing paradigms were centered on the importance of the solidity of the NATO alliance and America's demonstrated commitment to its allies. This explains Robert Kennedy's strong demand for no publicized quid pro quo over the Jupiter missiles in Turkey during later

79. Dobbs, *One Minute to Midnight*, 323.

80. Taubman, *Khrushchev*, 552.

81. Taubman, *Khrushchev*, 561.

82. Taubman, *Khrushchev*, 561.

83. Taubman, *Khrushchev*, 561.

84. May and Zelikow, *The Kennedy Tapes*, 666.

negotiations with Khrushchev.⁸⁵ Another paradigm specific to the Kennedy administration was the idea that Cuba may be Kennedy's Achilles' heel.⁸⁶ The failed Bay of Pigs invasion raised serious public doubts about the president's judgment and the wisdom of his advisers, and highlighted Cuba as a serious threat to US security.⁸⁷ Upcoming elections were at stake, because Kennedy, under Khrushchev's deception, had foisted a false sense of security on his own country.⁸⁸

Likewise, Kennedy and his advisers carefully considered threats associated with Khrushchev's perceptions. They worried that Khrushchev underestimated Kennedy's resolve due to the Bay of Pigs and Vienna summit. They understood that if Khrushchev got away with the missile deployment, he would inevitably try other adventures, and Berlin would eventually end up as the target.⁸⁹ Therefore, they had to remove the missiles from Cuba one way or another, and from the moment he and his advisers met on 16 October, they were determined to do so.⁹⁰

As confirmed by the U-2 pictures of Soviet missiles in Cuba, the Kennedy Administration was clearly deceived by Khrushchev. Despite overt interference in Cuba during the Bay of Pigs incident, the Kennedy Administration misperceived the effectiveness of an increasingly more moderate approach to Cuba. They declared the US would permit only "defensive" weapons in Cuba and expected Khrushchev to not push the issue. When he did by deploying intermediate-range nuclear missiles to Cuba, Kennedy and his advisers realized they had misperceived some of Khrushchev's cultural, cognitive, or ego-psychology perceptions at play.⁹¹ The Kennedy Administration did not know Khrushchev's domestic and personal position in 1962. The Americans did not fully grasp how deeply Khrushchev and his colleagues felt that their inferior position was "impossible."⁹²

85. Allison and Zelikow, *Essence of Decision*, 364.

86. Allison and Zelikow, *Essence of Decision*, 329-30.

87. Allison and Zelikow, *Essence of Decision*, 329-30.

88. Taubman, *Khrushchev*, 557.

89. Taubman, *Khrushchev*, 557.

90. Taubman, *Khrushchev*, 557.

91. Khrushchev, *Khrushchev Remembers*, 512; Taubman, *Khrushchev*, 532.

92. May and Zelikow, *The Kennedy Tapes*, 674-5.

From the beginning, Kennedy admitted, “We certainly have been wrong about what he’s trying to do in Cuba... There isn’t any doubt about that.”⁹³ He continued, “Well, It’s a goddamn mystery to me. I don’t know enough about the Soviet Union, but if anybody can tell me any other time since the Berlin blockade where the Russians have given so clear a provocation, I don’t know when it’s been, because they’ve been awfully cautious, really... I never...”⁹⁴ Early in the crisis, one lesson that came quickly for Kennedy and his advisors was that what had appeared to be rational behavior in Moscow had come across as dangerously irrational behavior in Washington, and vice versa.⁹⁵

However, as the crisis developed, Kennedy and his administration acquired a more accurate perception of Khrushchev’s mysterious reasoning. They understood that to interpret Soviet decision was to interpret Khrushchev.⁹⁶ Unlike Kennedy, Khrushchev did not face midterm elections and public opinion was a relatively minor concern.⁹⁷ Kennedy marveled at how Khrushchev turned his reputation as a bully into an advantage: “If you’re a son of a bitch, then every time he looks at all agreeable, everybody falls down with pleasure.”⁹⁸ Likewise, from Vienna Kennedy was able to properly perceive how Khrushchev viewed him. Kennedy and his advisors understood the gravity of the situation and considered the Cuban crisis the most dangerous since the Suez crisis six years earlier.⁹⁹ Khrushchev’s actions essentially doubled the number of Soviet nuclear missiles capable of reaching the United States.¹⁰⁰ However, Kennedy saw the missiles in Cuba as a disturbance to the status quo and a threat to spread communism in the Western hemisphere more than any threat to the doctrine of Mutually Assured Destruction (MAD).¹⁰¹ While Kennedy accurately perceived the prevalence of balance-of-power politics, he also understood that if the US struck Cuba, Khrushchev would almost certainly take some kind of action elsewhere against NATO allies.¹⁰² These

93. May and Zelikow, *The Kennedy Tapes*, 89.

94. May and Zelikow, *The Kennedy Tapes*, 107.

95. Gaddis, *The Cold War*, 80.

96. May and Zelikow, *The Kennedy Tapes*, 668-70.

97. Dobbs, *One Minute to Midnight*, 85.

98. Taubman, *Khrushchev*, 531.

99. Gaddis, *The Cold War* 76-7.

100. Gaddis, *The Cold War* 76-7.

101. Dobbs, *One Minute to Midnight*, 99; Gaddis, *The Cold War*, 77.

102. May and Zelikow, *The Kennedy Tapes*, 84.

considerations of Khrushchev's perceptions demonstrated deliberate consideration of the Soviet mental COG.

Kennedy and his associates in the ExComm met in secret for several days after discovering the missiles, urgently seeking to devise a response. Before announcing a blockade of Cuba on 22 October, and during the next six days until the crisis ebbed on 28 October, they continued to work on Khrushchev's motives to determine what he would do next. They quickly discerned four hypotheses. The Joint Chiefs of Staff focused on relative power and believed he intended to undo America's strategic nuclear superiority. Bohlen and Thompson focused on regionalism and believed Khrushchev intended to cut a Turkey-Cuba deal, while Thompson and Ball believed he intended to cut a Berlin-Cuba deal. Finally, Kennedy and his advisors also considered another aspect of regionalism; the possibility that Khrushchev intended to spread Soviet influence in the Western Hemisphere and improve Cuba's protection.¹⁰³ Since 1962 no other hypotheses have been advanced to supplement the four voiced by Kennedy and his advisers during the crisis.¹⁰⁴

The vital need to maintain private communication between the White House and Kremlin was recognized by both Khrushchev and Kennedy and reinforced by the crisis. As Soviet ships approached American warships stationed along the quarantine line, the American leaders sent a letter to the Soviets expressing the need "that we both show prudence and do nothing to allow events to make the situation more difficult to control than it is."¹⁰⁵ Later, a Soviet reply emphasized the danger, "Contact by our ships...can spark off the fire of military conflict after which any talks would be superfluous because other forces and other laws would begin to operate—the laws of war."¹⁰⁶ Such communication encouraged Kennedy and Khrushchev to establish a "hot line" after the crisis.

Kennedy and his advisors did make some perceptual errors. Some historians fault Kennedy by highlighting how his threats to Cuba helped provoke a crisis that he had

103. Taubman, *Khrushchev*, 530-31.

104. May and Zelikow, *The Kennedy Tapes*, 99, 100, 666.

105. Allison and Zelikow, *Essence of Decision*, 237.

106. Allison and Zelikow, *Essence of Decision*, 237.

failed to foresee, and then he pressed Khrushchev despite a real risk of nuclear war.¹⁰⁷ However, the Cold War was an intelligence war fought in the shadows.¹⁰⁸ Early in the crisis, the quality of information reaching Kennedy and his advisors was often hampered by many perceptual errors within the US intelligence community during collection, interpretation and analysis.¹⁰⁹ Even before the crisis ensued, eyewitness reports of giant tubes being unloaded from Soviet ships were dismissed because of incompatibility with the CIA estimates of “Soviet practice to date.”¹¹⁰ Then, when Khrushchev blinked on the first night of the crisis, it took thirty hours for the blink to become visible to decision makers in Washington.¹¹¹ However, as the crisis developed, a wealth of information began flowing into the Situation Room.¹¹² From this point forward, Kennedy and his advisors’ only significant misperception was the potential escalatory role that tactical nuclear weapon technology could pose during the crisis. Bundy stated, “I would think one thing that I would still cling to is that [Khrushchev’s] not likely to give Fidel Castro nuclear warheads. I don’t believe that has happened or is likely to happen.”¹¹³ Of course, Khrushchev did so, and aside from the initial deception, this was Kennedy’s most significant PPI error.

Where Kennedy and his advisors had a critical advantage over Khrushchev was in deliberate avoidance of common misperception pitfalls and groupthink. Kennedy did not make any impulsive decisions during the crisis and invariably opened up much of his reasoning about the pros, cons, and likely consequences of his choices before he made them.¹¹⁴ He exposed his thinking to a range of analyses and critiques from all formal advisers, many informal advisers, and even representatives of the British government.¹¹⁵ Kennedy would even step out of the room, leaving his brother to encourage free discussion without his influence. Likewise, the White House Tapes reveal that they

107. Taubman, *Khrushchev*, 532.

108. Dobbs, *One Minute to Midnight*, 184.

109. Dobbs, *One Minute to Midnight*, 352.

110. Dobbs, *One Minute to Midnight*, 352.

111. Dobbs, *One Minute to Midnight*, 91.

112. Dobbs, *One Minute to Midnight*, 208.

113. May and Zelikow, *The Kennedy Tapes*, 99.

114. May and Zelikow, *The Kennedy Tapes*, 690-1.

115. May and Zelikow, *The Kennedy Tapes*, 690-1.

consistently avoided overreliance on imperfect historical analogies such as Berlin, Suez-Hungary, Korea or Pearl Harbor.¹¹⁶

US Perceptions of Each Actor's Goals

Kennedy and his advisors developed four strong rational hypotheses of Soviet goals and developed US goals and strategy accordingly. US goals were not only to remove the missiles from Cuba, but also to overthrow Castro's communist regime as indicated by the Bay of Pigs. Both were to be pursued as part of a power-oriented grand strategy. However, the careful US consideration of costs associated with brute force measures was critical to prevent a disastrous transition to a survival-oriented grand strategy.

US Perceptions of Each Actor's Options (IOPs) for Addressing the Crisis

The US options were to do nothing, apply diplomatic pressures, pursue a secret approach to Castro, invade Cuba, airstrike, nuclear first strike, or blockade.¹¹⁷

McNamara strongly supported the last option as the crisis progressed. He stated, "A blockade is an ultimatum...Absolutely. I call it an ultimatum associated with these two actions, a statement to the world, particularly to Khrushchev, that we have located these offensive weapons. We're maintaining a constant surveillance over them. If there is ever any indication that they're to be launched against this country, we will respond not only against Cuba, but we will respond directly against the Soviet Union with a full nuclear strike. Now this alternative doesn't seem to be a very acceptable one. But wait until you work on the others."¹¹⁸ He argued that if they struck the missiles with air strikes, the Soviets would just rebuild and replace them, requiring the blockade to sink inbound Soviet ships. As such escalation was considered unacceptable, the group was pushed towards the more diplomacy-focused blockade option.¹¹⁹ Finally, perceived political limitations drove the blockade to be called a quarantine, so technically not an act of war.¹²⁰

116. May and Zelikow, *The Kennedy Tapes*, 700.

117. Allison and Zelikow, *Essence of Decision*, 111-20; May and Zelikow, *The Kennedy Tapes*, 55-66; Dobbs, *One Minute to Midnight*, 228.

118. May and Zelikow, *The Kennedy Tapes*, 113.

119. May and Zelikow, *The Kennedy Tapes*, 99.

120. Taubman, *Khrushchev*, 559.

Implications of perceived organizational behavior were taken into account by Kennedy and his advisors. However, some errors were made in this area. First, as the American forces shifted to DEFCON 3, no one in the White House really appreciated what it entailed.¹²¹ Second, on 28 October, an Early Warning Radar false alarm threatened to launch the world into WWII.¹²² Third, Kennedy realized that the state department had a lack of prior coordination with the Turks and their Jupiter missiles.¹²³ Fourth, McNamara meddled in Naval operational matters and attempted to tell the Navy how to do its job during the blockade.¹²⁴ Troubled by a lack of information from the military, McNamara was unclear whether military leaders were deliberately withholding information or whether they themselves did not know what was going on.¹²⁵ This clash between the Secretary of Defense and US Navy proved to be a historic example of the struggle for influence between civilian and military leadership.¹²⁶ Additionally, political-military and interagency coordination appeared to be inadequate. For years afterward, a number of Kennedy's advisers expressed annoyance about the absence of a viable "surgical" strike option.¹²⁷ Former Secretary of State Dean Acheson complained about how the narrow and specific proposals of the JCS constantly became obscured and complicated by trimmings added by the military.¹²⁸ Other critics of the political-military breakdown suggest the civilian advisors didn't sufficiently weigh the military explanation behind the Air Force's unwillingness to serve up a narrow strike option.¹²⁹ The Chiefs and the commanders felt so strongly about the dangers inherent in the limited strike that they preferred taking no military action to a limited strike. They felt that it would open up the US to attacks which they couldn't prevent.¹³⁰

However, Kennedy and his advisors did deliberately consider some implications of perceived organizational behavior. McNamara's "no cities" doctrine had to be shelved

121. Allison and Zelikow, *Essence of Decision*, 238.

122. Allison and Zelikow, *Essence of Decision*, 239.

123. Allison and Zelikow, *Essence of Decision*, 242.

124. Dobbs, *One Minute to Midnight*, 72.

125. Dobbs, *One Minute to Midnight*, 273.

126. Dobbs, *One Minute to Midnight*, 72.

127. Allison and Zelikow, *Essence of Decision*, 229; Acheson, Dean, "Homage to Plain Dumb Luck" in *The Cuban Missile Crisis*, ed. Robert Divine, (Chicago: Quadrangle Books, 1971), 189.

128. Allison and Zelikow, *Essence of Decision*, 229; Acheson, "Homage to Plain Dumb Luck," 189.

129. Allison and Zelikow, *Essence of Decision*, 229; Acheson, "Homage to Plain Dumb Luck," 189.

130. Allison and Zelikow, *Essence of Decision*, 201.

when SAC dispersed their bombers.¹³¹ Likewise, the organizational chain to escalation was thoroughly examined. The advisors recognized that if the US attacked missiles in Cuba, the Soviets would likely attack missiles in Turkey, and the Turks might launch nuclear missiles toward the Soviet Union causing full nuclear retaliation.¹³² Accordingly, centralized control of key military units became a priority. Advances in the technology of communications made it possible for political leaders in the basement of the White House to talk directly with commanders of destroyers stationed along the quarantine line.¹³³ Determined not to let needless incidents or reckless subordinates escalate so dangerous and delicate a crisis beyond control, Kennedy personally directed some aspects of the quarantine operation.¹³⁴

As was the case with their management of organizational behavior, Kennedy and his advisors got more right than wrong when considering perceptions and implications of governmental politics. Some maintain that they erred in their assessment of societal and governmental desires for cognitive consistency. Fifty years later, Americans still struggle to honestly dissociate the Jupiter missiles on Soviet borders. Likewise, and as illustrated by the White House Tape excerpt provided above, only a blend of irrational cognitive consistency and US governmental politics can explain Kennedy's ability to do so in 1962. Governmental politics played out in an informally-selected, inner circle of advisers that met either at the White House or at the State Department from 16-19 October. This group assumed a more regular, formal quality in successive meetings of the NSC from 20-22 October, but then again narrowed to the inner circle designated as the Executive Committee of the NSC (ExComm).¹³⁵ Robert Kennedy admitted, "The fourteen people involved were very significant—bright, able, dedicated people, all of whom had the greatest affection for the US... [However] If six of them had been President of the US, I think that the world might have been blown up."¹³⁶

However, at the outset of the crisis, the individuals who convened at the president's discretion brought unique perspectives and opinions. Before final decisions

131. Allison and Zelikow, *Essence of Decision*, 237.

132. Allison and Zelikow, *Essence of Decision*, 201.

133. Sorensen, *Kennedy*, (New York: Harper and Row Publishers, 1965), 710; Allison and Zelikow, *Essence of Decision*, 231.

134. Sorensen, *Kennedy*, 710; Allison and Zelikow, *Essence of Decision*, 231.

135. Allison and Zelikow, *Essence of Decision*, 325-7.

136. Allison and Zelikow, *Essence of Decision*, 325.

were made, the majority agreed, even on the choice of a blockade.¹³⁷ The blockade also had three distinct options for presidential choice and the basic choice provided a submenu of choices, enabling the president to calibrate US actions more carefully, find the precise spot where he felt the greatest confidence, and give clear operational guidance to his subordinates.¹³⁸ Robert Kennedy described this process as the most subtle and intricate probing, pulling and hauling, leading, guiding and spurring.¹³⁹ The decision to blockade and link the blockade to a demand for removal of missiles from Cuba backed by the threat of more direct military action, thus emerged as a collage.¹⁴⁰ To get from various impulses to a government decision that combined both the blockade and air strike approaches required significant effort to forge the synthesis.

US Perceptions of Each Actor's Strategic Costs, Benefits and Best Options

Previously, on 4 September, Kennedy instructed his press secretary, Pierre Salinger, to issue a public warning drawing the line at any Soviet deployment of offensive weapons to Cuba. When they were discovered, Kennedy said, "Last month I said we weren't going to allow it. Last month I should have said that we don't care. But when we said we're not going to, and then they go ahead and do it, and then we do nothing, then I should think that our risks increase."¹⁴¹ Khrushchev had erred. Kennedy had to respond forcibly or he would: undermine the confidence of the members of his administration, convince his permanent government that the administration had no leader, cut the ground out from under his fellow Democrats with elections less than three weeks away, destroy his reputation with all but a few members of Congress, create public distrust of his word and his will, reinforce his image from the Bay of Pigs failure, and feed doubt in his own mind about himself.¹⁴² Ultimately, Kennedy's perception of options was driven primarily by what Kenneth Waltz later described as his third image. This image of international conflict describes international anarchy as the primary cause of conflict, and was succinctly captured by Bundy during deliberations: "I think any

137. Allison and Zelikow, *Essence of Decision*, 345-6.

138. Allison and Zelikow, *Essence of Decision*, 345-6.

139. Allison and Zelikow, *Essence of Decision*, 345-6.

140. Allison and Zelikow, *Essence of Decision*, 345-6.

141. Allison and Zelikow, *Essence of Decision*, 335.

142. Allison and Zelikow, *Essence of Decision*, 339-40.

military action does change the world. And I think not taking action changes the world. And I think these are the two worlds that we need to look at.”¹⁴³

Unlike Khrushchev, Kennedy had a foundation of reasonable PPI from which to dive into a cost-benefit analysis. Such calculations focused on pacing and managing events in such a way that the Soviet leaders would have time to see, think, and blink.¹⁴⁴ The business-minded McNamara ensured obvious economic principles were not overlooked as he highlighted the opportunity costs associated with delaying an airstrike.¹⁴⁵ Missing information, OODA speed considerations and confidence intervals were thoroughly discussed. In the end, Kennedy’s cost-benefit calculations were thorough as compared to Khrushchev’s. According to documented history, these more precise calculations provided for more sound strategic decision-making than Khrushchev.

As John Gaddis eloquently surmises, “The Cuban Missile Crisis persuaded most everyone that the weapons each side had developed during the Cold War posed a greater threat to both sides than the US and the Soviet Union did to one another.”¹⁴⁶ Some historians, like Taubman, credit Khrushchev with key decisions to avoid nuclear war: “As poor and shortsighted as Khrushchev’s strategy was, in the end, he could have taken the world down in flames with him, as Hitler had, or collapsed like Stalin. As one dream of glory came crashing down around him, he glimpsed another in the ruins. Not only would he save Cuba, but he would save the world, save it from the brink to which his own recklessness had brought it.”¹⁴⁷ However, credit is probably more appropriately afforded to Kennedy and his advisors in their deliberate, PPI-focused, strategic decision making.

PPI consideration enabled US strategy to encourage significant events that led to the de-escalation of the crisis. These events included: the US initial “quarantine” response; Khrushchev’s ship turn-back; Khrushchev’s deal to guarantee Cuban safety; and Kennedy’s secret deal for the missiles in Turkey. Likewise, PPI consideration ensured unforeseen events did not lead to uncontrollable escalation. The most notable

143. May and Zelikow, *The Kennedy Tapes*, 107.

144. Allison and Zelikow, *Essence of Decision*, 231.

145. May and Zelikow, *The Kennedy Tapes*, 57.

146. Gaddis, *The Cold War*, 78.

147. Taubman, *Khrushchev*, 567.

examples were the Cuban downing of an American U-2 spy plane without authorization from the Kremlin, and NORAD's false alarm.¹⁴⁸

Conclusion

While the previous chapter highlighted strategic relative advantages provided by accurate PPI, this PPI-focused RAM analysis highlighted shared absolute gains provided by accurate PPI. To be clear, the world is fortunate to have had sane, level-headed men occupying the White House and Kremlin in October 1962.¹⁴⁹ However, paradigmatic and perceptual errors undoubtedly sharpened the point on which the world teetered during the Cuban Missile Crisis. Explicating these errors for careful consideration of new paradigmatic and misperception avoidance strategies may prevent some future crises altogether. The greatest lesson from the Cuban Missile Crisis is that in a world with nuclear weapons, a Clausewitzian military victory is an illusion.¹⁵⁰ Communism could not be defeated militarily; it had to be defeated economically, culturally and ideologically.¹⁵¹ Figure 3 illustrates a PPI-RAM scorecard of estimated accuracy of paradigms, perceptions and interpretation of information driving US and Soviet strategic decisions during the Cuban Missile Crisis. Green scores indicate generally accurate PPI given the evidence provided, yellow indicates partially accurate PPI, and red indicates inaccurate PPI.

With the explanatory utility of the PPI-focused RAM established, the model is now applied to a contemporary strategic challenge for the US in order to measure its prescriptive utility. While additional research beyond the scope of this project is required to fully apply the model in a prescriptive capacity, the following analysis is intended to serve primarily as a recommendation for further research.

148. Dobbs, *One Minute to Midnight*, 296, 336.

149. Dobbs, *One Minute to Midnight*, 353.

150. Dobbs, *One Minute to Midnight*, 350.

151. Dobbs, *One Minute to Midnight*, 350.

Figure 4. Cuban Crisis PPI RAM Scorecard

USSR	US	
Red	Yellow	What circumstances does each actor involved <i>perceive</i> as threats and opportunities?
Red	Yellow	<ul style="list-style-type: none"> • Consider accuracy of existing strategic paradigms • Evaluate all possible cultural, cognitive & ego psychology <i>perceptions</i> at play <ul style="list-style-type: none"> ○ Accuracy of <i>perceptions</i> driving enemy threats ○ Accuracy of <i>perceptions</i> driving our opportunities ○ <i>Perceived</i> prevalence of balance-of-power politics <ul style="list-style-type: none"> ▪ <i>Perceived</i> importance of relative versus absolute gains ▪ <i>Perceived</i> role of regionalism and globalization ○ <i>Perceived</i> physical, mental and moral Centers of Gravity (COGs) ○ <i>Perceived</i> threats and opportunities introduced by new technologies ○ Accuracy of our <i>perceptions</i> of enemy <i>perceptions</i> and vice versa ○ Level of communication with enemy and <i>perceived</i> deception ○ Deliberate avoidance of common misperceptions and groupthink
Red	Green	What are each actor's established/ <i>perceived</i> <u>goals</u>
Red	Green	<ul style="list-style-type: none"> • Survival or power-oriented grand strategy? • Coercion or brute force?
Red	Green	What are each actor's <i>perceived</i> options (instruments of power) for addressing the issue?
Red	Green	<ul style="list-style-type: none"> • <i>Perceived</i> legal, ethical and political limitations (jus ad bellum and jus in bello) • Allison & Zelikow Model II—organizational behavior implications/<i>perceptions</i> <ul style="list-style-type: none"> ○ <i>Perceived</i> organizational character ○ <i>Perceived</i> political-military and interagency coordination • Allison and Zelikow Model III—governmental politics implications/<i>perceptions</i> <ul style="list-style-type: none"> ○ <i>Perceived</i> societal or governmental desires for cognitive consistency ○ <i>Perceived</i> chance of military leadership shirking • Implications/<i>Perceptions</i> ofWaltz human nature image <ul style="list-style-type: none"> ○ Machiavellian Fundamentalists or Locke/Bentham <u>Institutionalists</u>? • Implications/<i>Perceptions</i> ofWaltz structure of state image <ul style="list-style-type: none"> ○ <u>Rousseauian</u> Constitutionlists or Smith/Schumpeter Commercialists? • Implications/<i>Perceptions</i> ofWaltz anarchic international environment image <ul style="list-style-type: none"> ○ Hobbesian structuralism, Kantian Internationalism, or Wendt Constructivism?
Red	Green	What are each actor's <i>perceived</i> strategic costs and benefits of each option?
Red	Green	<ul style="list-style-type: none"> • Economic principals to rationalize—<i>perceived</i> opportunity costs, contracts, cost/benefit analysis, information asymmetry, marginal returns, substitution • Consider missing information, OODA speed and perception confidence intervals
Red	Green	What is each actor's <i>perceived</i> best choice given these conditions?
Red	Green	<ul style="list-style-type: none"> ○ Goals + perceptions + calculus [<u>Bp</u>(B) - <u>Cp</u>(C)] = policy & decisions

CHAPTER 4

The PPI-Focused RAM: A Scientific, Prescriptive Model for Postmodern War

Given the explanatory nature of the PPI-focused model for strategy development, its utility as a prescriptive tool for current and future strategy development must be considered. Is the model's utility limited to providing explanations for historical strategic errors such as those caused by the Soviet closed decision-making system during the Berlin and Cuban Missile Crises? Or can it provide contemporary American strategists a useful approach in the development of new strategy, especially while managing new technologies and associated paradigms, perceptions and interpretation of information (PPI)? This chapter attempts to answer this question by considering an emerging aspect of US military strategy: cyberpower.

In his 1985 book *...the Heavens and the Earth: A Political History of the Space Age*, Walter McDougall explained how the Cold War forced the US to adopt what he calls "technocracy"—the institutionalization of technological change for state purposes through state-funded research and development.¹ Over the years, this technocracy and its accompanying bureaucratization exacerbated an American obsession with Clausewitzian paradigms and impeded careful consideration of critical PPI within the context of new battlefield landscapes. Accordingly, US military strategists are now postured to make similar PPI mistakes as did Stalin and Khrushchev during the Berlin and Cuban Missile Crises, respectively. This chapter will analyze US cyber-power theory and strategy using the PPI-focused RAM to provide evidence for this hypothesis. The evidence will highlight shortfalls in current US cyber-power theory, and provide a recommended, if abbreviated, cyber-power strategy.

Circumstances the US Perceives as Cyber Threats and Opportunities

The PPI-focused RAM presented in Chapter 1 directly addresses cyber-related strategic shortfalls by calling for careful consideration of all actors' *perceived threats and opportunities introduced by new technologies*. To do so, the model directs the strategist to first determine the accuracy of existing strategic paradigms. Because contemporary

1. McDougall, Walter, *... the Heavens and the Earth: A Political History of the Space Age*, (New York: Basic Books, 1985), 5, 140.

American military strategists have failed to do so, they have been unable to produce sound cyber-power theory and strategy.

Even as cyber became an important strategic domain as more and more of the world is connected to and reliant on computers and computer networks, existing American paradigms drove the development of a military cyber-power theory that cannot adequately answer serious questions about possible cyber-power threats. Is *cyber-war* a relevant term and does it imply a changed nature of war? Can control of the electromagnetic spectrum ever override or even match the traditional powers of money, politics, and armies? How pivotal are cyber visions, ideas, opportunities and threats, and associated strategies to the relative posture, or even continued existence, of various world actors? What is the right balance of cyber freedom and security, and will international cooperation and constructivism provide an answer? Are our adversaries already engaged in cyber-war, or are cyber strategies mere distractions from traditional realist balance-of-power concerns? And finally, how should we best invest in cyber offense and defense to maximize cybernetic and chaoplexic opportunities while minimizing threats?

American cyber-power theory's inability to adequately address these questions indicates a paradigmatic misapplication of related foundational theory. In his 2011 article "An Imperfect Jewel," Harold Winton explains how theory must "connect the field of study to other related fields in the universe."² This connection is essential to providing a degree of relevance and utility for any theory. Cyber is no different. Before developing cyber definitions, theory and strategy, military cyber strategists must fully understand and properly apply the community of related theories. However, vis-à-vis cyber technology, American military strategists simply maintained the traditional Clausewitzian war paradigm and treated cyber influence as just another new opportunistic technology that modified the character of war. Unfortunately, the traditional Clausewitzian theory of war is not the optimal foundation for cyber theory.

Cyber-power theorists must understand the distinction between cyber-power at the military-strategic and grand-strategic levels. Sun Tzu's theory of war provides an approach to understanding cyber-power at the grand-strategy level while Clausewitz

2. Winton, Harold R., "An Imperfect Jewel: Military Theory and the Military Profession", *The Journal of Strategic Studies*, 34 (December 2011), 855.

provides the same for military strategy. Sun Tzu explained: “Those skilled in war subdue the enemy’s army without battle. They capture his cities without assaulting them and overthrow his state without protracted operations.”³ Clausewitz described war as a violent duel on a larger scale where a combat force is used “to compel our enemy to do our will.”⁴ These acts of war, he asserts, will change in character with new technology, but not in nature.⁵ With respect to the traditional instruments of power—Diplomatic, Information, Military and Economic (DIME)—Sun Tzu’s theory of war encompasses all DIME instruments while Clausewitz’s theory deals much more specifically with the military instrument of power.

Some military theorists such as David Lonsdale cleverly argue for the more traditional interpretation of cyber-power by employing circular Clausewitzian terminology. In his 2004 book, *The Nature of War in the Information Age*, Lonsdale argues that strategic information warfare will never alter the nature of war until it proves to be independently decisive.⁶ Drawing a cyber-power parallel from an inaccurate analogy to the early history of airpower, Lonsdale failed to note that airpower, unlike cyber-power, lacks the capacity to impose violence on an adversary without at least the threat of military attack. Airpower resides largely within the military instrument of power, while cyber-power can emanate from, or independently affect, any one or combination of instruments of national power (DIME).⁷

In the development of cyber-power theory, these strategists that continue to rely on a Clausewitzian paradigmatic approach suffer from irrational cognitive consistency.⁸ It is understandably more comfortable and seemingly more efficient for the military strategist to maintain the traditional Clausewitzian war paradigm and treat cyber influence as just another new opportunistic technology that changes the character of war.

3. Tzu, Sun, *The Illustrated Art of War; The definitive English Translation by Samuel B. Griffith*, (New York: Oxford University Press, 2005), 118.

4. Clausewitz, Carl, *On War*, trans. and ed. Michael Howard and Peter Paret, (Princeton: Princeton University Press, 1984), 75, 90.

5. Clausewitz, *On War*, 95.

6. Lonsdale, David J., *The Nature of War in the Information Age: Clausewitzian Future Strategy and History*, Edited by Colin Gray and Williamson Murray, (London: Frank Cass, 2004), 13.

7. Khong, Yuen Foong, *Analogies at War*, (Princeton: Princeton University Press, 1992), 263.

8. Jervis, Robert, *Perception and Misperception in International Politics*, (Princeton, N.J.: Princeton University Press, 1976), 117.

However, unlike other technological advances, cyber threats lay largely outside the military realm, can produce effects perceived as *violent* regardless of military influence, and call for a more comprehensive approach to war. With new cyber capabilities, Sun Tzu's cornerstones—espionage and deception—attain new prominence, and Clausewitz's battles often lose relevance. However, over the past several decades, US military strategists have resisted paradigmatic transition despite obvious presumptive anomalies.⁹ These anomalies, suggesting the need to reassess traditional paradigms of war and perceptions of cyber threats, included events such as Galaxy IV in 1998, Project Aurora in 2007, cyber-attacks on Estonia in 2007 and Georgia in 2008, the Stuxnet worm in 2010, and Chinese strategic initiatives released in 1988 and 1999.¹⁰

In response to these growing cyber threats, American military strategists must finally accept a new paradigm for war, one that is already understood by most of US society. The essence of this new paradigm is an acknowledgement of an evolved nature of war—an actor's violent use of an instrument of power to impose its will on another actor...with violence to be defined by those on the defensive and perceived by those on the offensive. This new nature of war does not disregard the traditional Clausewitzian image of violent large-scale duels, but merely expands the image to include what a *violent* cyber-war might entail.

The PPI-focused RAM also directs the strategist to consider the *perceived prevalence of balance-of-power politics*. Accordingly, American military strategists must acknowledge the fact that cyber-power might change the relative weights of Kenneth Waltz's three images of international conflict.¹¹ First, cyber increases the relative power of the individual. The information sharing enabled by cyber has facilitated the banding together of like minds in regional and global initiatives. Likewise, cyber can be employed as an attack executed by a mass of these connected individuals. However,

9. Constant, Ed. *The Origins of the Turbojet Revolution*, (Baltimore, MD: The Johns Hopkins University Press, 1980), 1-32; 99-150; 178-246.

10. Brenner, Susan W. *Cyberthreats: The Emerging Fault Lines of the Nation State*. (Oxford: Oxford University Press, 2009), 102, 3; Brenner, Joel, *America the Vulnerable: Inside the New Threat Matrix of Digital Espionage, Crime, and Warfare*. (New York: The Penguin Press, 2011), 95, 93, 117-8; Reveron, Derek S. ed., *Cyberspace and National Security: Threats, Opportunities, and Power in a Virtual World*, An (Georgetown: Georgetown University Press, 2012), 3; Sanger, David E., *Confront and Conceal: Obama's Secret Wars and Surprising Use of American Power*, (New York: Crown Publishers, 2012), 197.

11. Waltz, Kenneth N., *Man, the State, and War: a Theoretical Analysis*, (New York: Columbia University Press, 2001), 14.

the increase in information provided by cyber can also positively influence the innate behavior of mankind. Even assuming the negative attributes of man, increased information availability to all individuals should provide for more rational decision making and therefore better conflict outcome on the whole. Second, the characteristics of a state can constrain the effects of cyber influence. States' relative control of cyber information clearly plays a pivotal role in managing the opinions of the masses. Finally, balance-of-power politics within the anarchic international system no longer necessarily dominates national security concerns. The relevance of traditional balance-of-power politics may be degraded by cyber-attack or information operations, and attribution challenges may even make such politics irrelevant. Accordingly, contemporary military strategists' conception of Waltzian images of international conflict should be carefully considered when determining cyber implications throughout the DIME instruments.

With Sun Tzu's theoretical and paradigmatic foundation, the military cyber-power strategist can finally and distinctly define cyber terminology and identify threats. *Cyber* is simply a term describing anything having to do with computers or computer networks. Given the military strategist's focus on defense of the nation and the aforementioned need to consider the entirety of cyber, the DIME instruments of national power provide a reasonable framework for cyber conceptualization. While many consider cyber to reside within the information instrument of power, it is important to consider the threats and opportunities it provides for all aspects of the DIME. For example, cyber-power directly affects the means, rate and availability of diplomatic communications, provides for economic and military espionage, and fosters increased military and economic reliance on computer network efficiencies. In the formulation of cyber-power theory and strategy, the military strategist must understand and consider the probabilities and relative weights of opportunities and threats that cyber-power presents all instruments of power.

Cyberspace is the global domain within the information environment where electronics and the electromagnetic spectrum are used to exchange and exploit information via interdependent and interconnected networks.¹² *Cyber-power* is the ability to use cyberspace to create advantages and influence events in all operating

12. Waltz, *Man, the State, and War*, 276.

environments and instruments of power.¹³ Finally, *cyber-superiority* is the ability to use the cyberspace domain to create opportunities to exploit enemy weaknesses while denying them the ability to counter our defenses.¹⁴ Accordingly, cyber threats at the grand-strategic level are extremely diverse, requiring extensive coordination between the DOD, other federal and state agencies, and the private sector. This coordination is not yet adequately established.

Specifically within the military instrument of power, *cyber* has often been used to refer to specific offensive opportunities such as Network-Centric Operations (NCO), computer network attack and exploitation, and geopolitical influence operations and security.¹⁵ When viewed through this narrow lens, cyber-power is used as a force enhancer while also providing deliberate offensive and defensive cyber operations. However, military cyber-power is more accurately described as referring to opportunities within the entire electromagnetic spectrum that are employed during military operations to include Information Operations (IO), NCO, administrative functions, intelligence operations, and influence operations.¹⁶ IO is not exclusively cyber and is comprised of electronic warfare, psychological operations, military deception operations, and operational security¹⁷. Likewise, influence operations include nation-shaping, stabilization, reconstruction and counterinsurgency.¹⁸

The military has made and will continue to make huge investments in opportunities provided by full net-centricity and network integration. Still, each service maintains slightly varied perspectives on the relevance and use of cyber. The Air Force considers cyberspace a warfighting domain.¹⁹ The Army considers cyber to be a key enabler within the information and cognition domains.²⁰ The Navy and Marine Corps consider cyber as a technological advancement that enhances information operations while enabling network-centric operations.²¹ While slowed by parochial resistance,

13. Kramer, Franklin D., Stuart H. Starr, and Larry K. Wentz, eds., *Cyberpower and National Security*, (Washington DC: Potomac Books, 2009), 38.

14. Kramer, Starr and Wentz, *Cyberpower and National Security*, 37, 275.

15. Lonsdale, *The Nature of War in the Information Age*, viii.

16. Kramer, Starr and Wentz, *Cyberpower and National Security*, 286, 291.

17. Kramer, Starr and Wentz, *Cyberpower and National Security*, 293.

18. Kramer, Starr and Wentz, *Cyberpower and National Security*, 293.

19. Kramer, Starr and Wentz, *Cyberpower and National Security*, 301.

20. Kramer, Starr and Wentz, *Cyberpower and National Security*, 301.

21. Kramer, Starr and Wentz, *Cyberpower and National Security*, 301.

bureaucratic inertia and technological obstacles, many agree that DOD integration will ultimately succeed.²² When considered alongside evolving cyber threats and continued attribution difficulty, the obvious question is whether or not the efficacy of a streamlined, interconnected, interdependent Global Information Grid (GIG) is worth the loss of security provided by service diversity.²³ Statements assuring the GIG can *promise* effective operation during attacks and failures must be continually challenged.²⁴

Similarly, another threat is the US's increasing reliance on complex cyber technologies while assuming some measure of cyber-superiority. Senior leadership within US Cyber Command has expressed confidence in our ability to achieve and maintain cyber-superiority in future wars, while successful foreign cyber mining operations are reported by US media on a weekly basis. Without classified evidence supporting the contrary, any assumption of uncontested US cyber-superiority seems absurd. Posturing national defenses to be able to operate only with cyber-superiority, and with only plans for quick recovery from attacks, seems a high-risk strategy. Operations with deteriorated Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) are often discussed but training is grossly insufficient.

As military cyber-power strategists work through these threats, they must consider the implications of parallel challenges at the national level concerning the other instruments of power. The evolution of cyber technology, opportunities and threats generally affects each instrument in unison, but often in different ways.

US Perceptions of Each Actor's Cyber Goals

The PPI-focused RAM presented in Chapter 1 directly addresses cyber-related strategic shortfalls by calling for careful consideration of *each actor's perceived and established goals*. US military strategists' consideration of possible enemy goals outside the narrow, military lane of the Clausewitzian paradigm has been inadequate due to the paradigmatic inconsistencies described above. Meanwhile, Chinese strategists have

22. Kramer, Starr and Wentz, *Cyberpower and National Security*, 295.

23. Amoroso, Edward G, *Cyber Attacks: Protecting National Infrastructure*, (Amsterdam: Elsevier, 2011), 16.

24. Kramer, Starr and Wentz, *Cyberpower and National Security*, 305.

suggested the battlefield of the future will be invisible, and new information technology will encourage economic warfare, and in the process redefine war and national security.²⁵

In their 1999 book, *Unrestricted Warfare*, two senior PLA Colonels, Qiao Liang and Wang Xiangsui, proposed that cyber threats, independent of the military instrument of power, could pose existential threats to a nation.²⁶ They argued that when a single hacker attack on a financial institution may be considered an attempt to destroy a country's economy, and a CNN broadcast of an exposed corpse of a US soldier in the streets of Mogadishu shakes the determination of Americans and alter the world's strategic situation, the traditional definition of war must have changed.²⁷ They called this new form of warfare, which transcends all boundaries and limits, *unrestricted warfare*.²⁸ Especially given recent Chinese actions, the following 1999 quote from Liang and Xiangsui may provide insight into possible Chinese goals: “Supposing a war broke out between two developed nations already possessing full information technology...if the attacking side secretly musters large amounts of capital without the enemy nation being aware of this at all and launches a sneak attack against its financial markets, then after causing a financial crisis, buries a computer virus and hacker detachment in the opponent's computer system in advance, while at the same time carrying out a network attack against the enemy so that the civilian electricity network, traffic dispatching network, financial transaction network, telephone communications network, and mass media network are completely paralyzed, this will cause the enemy nation to fall into social panic, street riots, and a political crisis.”²⁹ Similar warning scenarios with striking plausibility have been presented by more contemporary writers such as Joel Brenner in his 2011 book, *America the Vulnerable*, and Richard Clarke's 2010 *Cyber War*.³⁰ While the goals of adversaries always require consideration of probabilities and confidence intervals, American military strategists must carefully consider such evidence.

25. Brenner, Joel. *America the Vulnerable*, 117-21.

26. Qiao Liang and Wang Xiangsui, *Unrestricted Warfare*, (Beijing: PLA Literature and Arts Publishing House 1999), 61.

27. Liang and Xiangsui, *Unrestricted Warfare*, 61.

28. Liang and Xiangsui, *Unrestricted Warfare*, 12.

29. Liang and Xiangsui, *Unrestricted Warfare*, 145-6.

30. Brenner, Joel. *America the Vulnerable*, 137-154; Clarke, Richard A. and Robert K. Knake, *Cyber War: The Next Threat to National Security and What to Do About It*, (New York: HarperCollins Publishers, 2010), 64-68.

US Perceptions of Each Actor's Strategic Costs, Benefits and Best Options

The PPI-focused RAM presented in Chapter 1 can directly address cyber-related strategic shortfalls by calling for careful consideration of each actor's perceived options for addressing the issue, and perceptions of each actor's strategic costs, benefits and best options. A full analysis of all actors' current options, cost benefit analysis, and best options is beyond the scope of this brief prescriptive evaluation of the PPI-focused RAM. However, to provide evidence for the prescriptive utility of the model, an example of what the model would likely produce for the US is provided below. As viewed through a Sun Tzu paradigm and perceptions already provided, the cyber-power theorist's best options are outlined in three general categories: military cyber offense, partnerships with federal agencies and the civilian sector for united cyber defense, and deterrence.³¹

Offense. Cyber offense should continue to include the full spectrum of employment of cyber technology to promote national security as already discussed. Obviously, many aspects of cyber technology are managed by their respective functional areas. For example, electronic warfare (EW) and Remotely Piloted Aircraft (RPA) technologies are not primarily managed by cyber leadership, but cyber strategists need to be involved in the management of the technology.

Likewise, cyber strategists should closely watch the development of various cyber technologies to better anticipate future capabilities and capacity. As cyber technological systems evolve, social forces driving their employment can be expected to transition more towards technological determinism—where technology itself exercises causal influence on social practice—as perceived value exceeds costs.³² However, full cyber technological determinism will likely never occur because the US cannot embrace chaoplexic warfare—fully decentralized and self-organizing force employment.³³ Political, legal, and ethical limitations in this age of global mass media will always require some degree of centralized control and keep the US military well within the realm of cybernetic operations. As described by Antoine Bousquet in his 2009 book, *The*

31. Kramer, Starr and Wentz, *Cyberpower and National Security*, 41.

32. Bimber, Bruce, Wiebe E. Bijker, Thomas P. Hughes and Trevor Pinch eds., *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, (Cambridge: The MIT Press, 1994), 83, 103.

33. Bousquet, Antoine, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity*, (New York: Columbia University Press, 2009), 163-4.

Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity, these cybernetic operations, or network centric warfare, require a significant measure of fidelity, especially in Command and Control (C2) automation, information negentropy (order in information flow), feedback capacity, and homeostasis (operative stability).³⁴ Accordingly, the cyber-power strategist should ensure network centric warfare planning and training maintains adequate flexibility to prevail on the edge of chaos and order.³⁵

Offensive cyber strategy mostly deals with deliberate cyber-attacks on external actors. This realm of cyber-power should be exclusively conducted by federal agencies, usually the military. Despite classification, the US's capacity to conduct offensive cyber operations is a safe assumption. While some accounts of the government's lack of expertise in cyber capabilities can be alarming, rumors of Conficker and Stuxnet botnet originations provide some evidence in support of this capability.³⁶ Regardless, such attacks must be carefully administered due to the new, emerging nature of war which hinges on the attacked actor's perception of violence.

Even softer forms of offensive cyber-attacks must be carefully planned. Mismanagement of influence operations in Iran in 2009 diminished desired effects.³⁷ When conducting influence operations, the strategist must focus on the nature of the audience, employ cultural experts, provide a consistent message, and adjust its message for new audiences.³⁸ Emphasis must be placed on maintaining long-term efforts while maintaining capacity to respond quickly to changes.³⁹ Likewise, relevant facts and international alliances must be carefully leveraged.⁴⁰ When countering one of an adversary's influence operations—propaganda, censorship or surveillance—care must be taken to ensure the attack does not strengthen its capacity in one of the other two areas.⁴¹ In other words, strategists must ensure they are attacking the influence operation they should rather than the one that is easiest to affect.⁴²

34. Bousquet, *The Scientific Way of Warfare*, 30, 137.

35. Bousquet, *The Scientific Way of Warfare*, 222.

36. Bowden, Mark, *Worm: The First Digital World War*, (New York: Atlantic Monthly Press, 2011), 96.

37. Morozov, Evgeny, *The Net Delusion: The Dark Side of the Internet*, (New York: Public Affairs, 2011), 11, 56.

38. Kramer, Starr and Wentz, *Cyberpower and National Security*, 359.

39. Kramer, Starr and Wentz, *Cyberpower and National Security*, 359.

40. Kramer, Starr and Wentz, *Cyberpower and National Security*, 359.

41. Morozov, *The Net Delusion*, 84.

42. Morozov, *The Net Delusion*, 311.

Defense. National cyber defense should be a united front. While the military must focus first on protecting vital DOD cyber capabilities, a close partnership with other federal and state agencies and the civilian sector can only improve situational awareness and national security.

In February 2013, President Barack Obama released his *Executive Order—Improving Critical Infrastructure Cybersecurity* to specifically address repeated cyber intrusions into critical infrastructure. It acknowledged cyber threats as one of the most serious national security challenges, requiring a balance of efficiency and civil liberties.⁴³ To do so, the order called upon several federal agencies to generate reports on how to foster a stronger partnership with critical civilian industries. In addition to acquisitions security, the order specifically tasked the DOD to establish procedures to assist the owners and operators of critical infrastructure in protecting their systems from unauthorized access, exploitation, or harm. However, the order described the effort as a *voluntary* information-sharing program and will therefore likely produce only limited improvements to the US defensive cyber posture. While efforts to preserve confidentiality, privacy, and civil liberties, and avoid involving the DOD in domestic matters are understandable, a significant cyber-attack on any instrument of national power will very likely eventually drive compromise in these areas. Unfortunately, a violent cyber-attack will probably be required to drive this paradigmatic shift towards mandatory civil participation in a federal cyber defense agency and enforced regulation of critical Supervisory Control and Data Acquisition (SCADA) cyber defense.

Primary cyber defense challenges to the strategists' options are clear: lack of international norms, difficulties of attack and attacker attribution, low barriers to entry, and relative ease of developing potent capabilities.⁴⁴ Other challenges include managing government secrets that reside in private-industry systems, military reliance on cyber, SCADA industry complacency, microchip supply-chain security, overreliance on firewalls, and emerging non-state actors.⁴⁵ Additionally, enemies have found ways to

43. Obama, President Barack, *Executive Order -- Improving Critical Infrastructure Cybersecurity*, Retrieved from the internet on 13 Feb 2013 at <http://www.whitehouse.gov/the-press-office/2013/02/12/executive-order-improving-critical-infrastructure-cybersecurity>, 1.

44. Brenner, Susan, *Cyberthreats*, 29, 70, 86, 122, 153; Reveron ed., *Cyberspace and National Security*, 9; Kramer, Starr and Wentz, *Cyberpower and National Security*, 56.

45. Brenner, Joel, *America the Vulnerable*, 64, 84, 86, 99, 268, 107.

target our intellectual property, and economic and net-centric systems with chaoplexic warfare.⁴⁶

To confront these challenges, the military should develop aggressive strategies to attract talented cyber technicians, reduce reliance on cyber-superiority, and focus on protecting the most critical assets.⁴⁷ The US government should formally declare that cyber defense is an exception to the Anti-Pinkerton Act to provide civilians full freedom to participate in cyber defense.⁴⁸ Likewise, the US government should increase military and civilian enforcement integration, and empower a central agency or department with real authority.⁴⁹ This unit could then consolidate cyber-defensive efforts for effective deception, separation, diversity, commonality, depth, discretion, collection, awareness and response.⁵⁰ Additionally, the US government should pursue cyber-oriented trade regulation, anti-trust relaxation, internet freedom review, tax incentives, and attribution research.⁵¹

Deterrence. Deliberate deterrence strategies require an even more delicate approach with focus on perceptions of the adversary's cost-benefit analysis. Remaining consistent with Sun Tzu's focus on intelligence and deception, the military strategist must carefully consider the right amount of cyber deterrence. Two general options are available. The strategist can drive up the costs and drive down the benefits of cyber-warfare to make it not worthwhile to the enemy, or keep them low enough to keep adversary's energies in the cyber realm and out of other, and potentially more dangerous kinetic realms. Efforts towards the former include aforementioned strategies and international treaties, partnerships and alliances.⁵² Efforts toward the latter may be the primary course of action if the US achieves a commanding lead in cyber technology.⁵³

Regardless, effort spent in establishing a cyber Law of Armed Conflict (LOAC) through the United Nations (UN), National Cyber Response Coordination Group

46. Kramer, Starr and Wentz, *Cyberpower and National Security*, 67; Brenner, Joel, *America the Vulnerable*, 48, 62, 131.

47. Brenner, Joel, *America the Vulnerable*, 70.

48. Brenner, Susan, *Cyberthreats*, 194.

49. Brenner, Susan, *Cyberthreats*, 195, 228.

50. Amoroso, *Cyber Attacks*, Ch 1.

51. Amoroso, *Cyber Attacks*, 179.

52. DOD Strategy for Operating in Cyberspace, July 2011, URL: <http://www.defense.gov/news/d20110714cyber.pdf>.

53. Sanger, *Confront and Conceal*, 266.

(NCRCG), Worldwide Anti-Globalization Alliance (WAGA), or North Atlantic Trade Organization (NATO) is likely wasted until the application, attribution, assessment and accountability challenges can be solved.⁵⁴ Deterring a non-attributable action with a secret single-shot retaliatory threat is comparable to a strategy of hope.⁵⁵ However, a solution set is probably not impossible and could entail: a virtual “library card” requirement for access to the internet including individual log-on credential verification with fingerprint, photo and GPS coordinates linked to state, federal or international identification on file, and international Internet Service Provider (ISP) requirements to maintain logs of internet usage on servers. Under such a system, most states could be held accountable for the actions of their citizens.⁵⁶

Conclusion. There is no single cyber solution at this time. Like interwar airpower development, some technological determinism exists in a real world driven by threats, opportunities and balance-of-power politics. However, there is also some room for social constructivism as the world community shares unique cyber risks and possible positive-sum gains. While this PPI-focused analysis provided only a cursory overview of the dynamics of cyber-power theory and strategy, it produced clear evidence that the most reasonable course of action will invariably depend on each actor’s goals, paradigms, perceptions, interpretation of information and cost-benefit analysis. Accordingly, American military strategists should develop cyber-power theory and strategy with a PPI-focused RAM similar to that presented in Chapter 1. If properly employed, this more scientific approach can, in the absence of divined Clausewitzian genius, elucidate more accurate PPI to account for the new nature of war and provide sound cyber-power theory and strategy.⁵⁷

54. Brenner, Susan, *Cyberthreats*, 39, 51, 63, 103; Reveron ed., *Cyberspace and National Security*, 74.

55. Sanger, 269.

56. Amoroso, *Cyber Attacks*, 116.

57. Clausewitz, *On War*, 136.

CHAPTER 5

Summary and Conclusions

Clausewitz stated, “Anything that could not be reached by the meager wisdom of such one-sided points of view was held to be beyond scientific control: it lay in the realm of *genius*, which rises above all rules.”¹ He asserts that this quality of genius is to be nurtured by personal reflections on the theory of the conduct of war, acquired directly through the natural perception of the mind, and never through positive doctrines, intellectual tools or scientific guidelines.² Beyond these vague generalities, Clausewitz provides little guidance for the contemporary strategist on how to achieve the critical “genius” also described by Sun Tzu. However, Sun Tzu offered hope for the development of a keen strategist, “Now if the estimates made in the temple before hostilities indicate victory it is because calculations show one’s strength to be superior to that of his enemy; if they indicate defeat, it is because calculations show that one is inferior. With many calculations, one can win; with few one cannot. How much less chance of victory has one who makes none at all! By this means I examine the situation and the outcome will be clearly apparent.”³

Many military strategists and theorists have rightly sided with Sun Tzu on the utility of careful calculations in place of an arbitrary reliance on Clausewitz’s elusive “genius” quality. Unfortunately, this led to the overplay of the scientific approach in war as demonstrated by J.F.C. Fuller’s *Science of War* and Defense Secretary Robert McNamara’s statistical oversimplification of the complexities of the Vietnam War. However, a useful scientific approach to military strategy still exists and hinges on deliberate sagacity. As Sun Tzu states, “If you know the enemy and know yourself, you need not fear the results of 100 battles.”⁴ Likewise, analytical psychologist Carl Jung stated, “It all depends on how we look at things, and not on how they are themselves.”⁵

1. Clausewitz, Carl, *On War*, trans. and ed. Michael Howard and Peter Paret, (Princeton: Princeton University Press, 1984), 136.

2. Clausewitz, *On War*, 168.

3. Tzu, Sun, *The Illustrated Art of War: The definitive English Translation by Samuel B. Griffith*, (New York: Oxford University Press 2005), 103.

4. Hadnagy, Christopher, *Social Engineering: The Art of Human Hacking*, (Indianapolis, IN: Wiley Publishing, Inc., 2011), chapter introduction.

5. Hadnagy, *Social Engineering*, chapter introduction.

In his 1976 book, *Perception and Misperception in International Politics*, Robert Jervis explored this notion and determined that “Decision-makers could minimize misperception. Given the complexity and ambiguity of information about international relations, perceptual and other decision-making errors will always be common. But steps could be taken to increase the degree to which disciplined intelligence can be brought to bear and decrease the degree to which decision-makers hold images and reach conclusions without thinking carefully about what they are doing.”⁶ However, the question remained how a military strategist can piece all of this together in a useful prescriptive strategic decision-making model. As demonstrated by this project, one answer is the PPI-focused RAM (Figure 2).

Overcoming inaccurate paradigms, misperceptions and interpretations of information requires deliberate effort in each step of the RAM to achieve an understanding of the associated concepts, pitfalls, implications and avoidance strategies. This PPI-focused RAM model drew from an inter-disciplinary review of works that provided theoretical concepts pertaining to decision making, international relations and war. As most theories and models attempt to explain factors separate from the RAM, this model demonstrates the power of improved PPI by synthesizing many theoretical concepts back into the RAM. The theories synthesized into a PPI-focused RAM for strategy development should be reassessed by strategists each time it is employed given the relative significance of various forces at play, but should remain as comprehensive as possible. In fact, the utility of this PPI-focused model for rational strategy development presented in Chapter 1 could be further improved with the inclusion of other theories. However, as presented, this model is sufficient to explain why the US strategies during the 1948 Berlin Crisis and 1962 Cuban Missile Crisis prevailed over those of the Soviet Union.

The dramatic Berlin Crisis of 1948 provided evidence for the explanatory utility of the PPI-focused model for rational strategy development. While many scholars attribute the outcome of the crisis to technological and managerial excellence associated with the airlift itself, analysis of underlying Soviet and US strategies provides a more

6. Jervis, Robert, *Perception and Misperception in International Politics*, (Princeton, N.J.: Princeton University Press, 1976), 11.

comprehensive explanation as to why the US prevailed.⁷ Soviet strategies during the Berlin Crisis of 1948 were plagued by inaccurate paradigms, perceptions and flawed interpretation of information. Meanwhile, US strategies seemed to prevail due, at least in part, to more deliberate PPI management. In Chapter 2, the explanatory power of the PPI-focused RAM was demonstrated by stepwise progressions through the RAM from the Soviet and US perspectives.

Likewise, the same PPI-focused RAM was used to explicate the paradigms, perceptions and interpretation of information that drove strategic decision making during the Cuban Missile Crisis. This approach, from both the Soviet and US perspectives, again validated the explanatory utility of the PPI-focused RAM. PPI consideration enabled US strategy to encourage significant events that led to the de-escalation of the crisis. While the previous chapter highlighted strategic relative advantages provided by accurate PPI, this PPI-focused RAM analysis highlighted shared absolute gains and losses caused by accurate US PPI and threatened by inaccurate Soviet PPI, respectively.

Given the explanatory nature of the PPI-focused model for strategy development, its utility as a prescriptive tool for current and future strategy development was then explored. While additional research beyond the scope of this project would be required to fully apply the model in a prescriptive capacity, a brief analysis was offered to suggest directions for further research. The hypothesis was: as the Cold War forced the US into some measure of technocracy, more restricted PPI now likely postures the US to fall into the same pitfalls as Stalin and Khrushchev during the Berlin and Cuban Crises. Chapter 4 briefly explored this hypothesis in the US approach to cyber power, theory and strategy. Given the unknowns and infancy of the new domain, evidence quickly emerged for the prescriptive utility of the model. There is no one cyber solution at this time. However, like interwar airpower development, some technological determinism exists in a world driven by threats, opportunities and balance of power politics. However, there is also some room for social constructivism as the world community shares unique cyber risks and possible positive-sum gains. State and non-state strategists must begin to develop

7. Tunner, William H, *The Berlin Airlift*, Reprinted with permission from General Tunner's autobiography *Over the Hump*, (Office of Air Force History, 1985); Smith, Jean Edward, *Lucius D. Clay, An American Life*, (New York: Henry Holt and Company, Inc., 1990); Plating, John D., *The Hump; America's Strategy for Keeping China in World War II*, (College Station: Texas A&M University Press, 2011); Gaddis, John L., *The Cold War; A New History*, (New York: Penguin Group, 2005).

cyber-power theory to properly assess goals and calculate benefits, costs and associated probabilities. This base-line cyber-power theory should provide more relevant paradigms for strategists and account for the possibilities introduced by a new nature of warfare.

In addition to cyber power theory and strategy, the lens of the PPI-focused RAM should prove useful in analyzing many other current challenges facing US military strategists. A few of these include: Sino-US competition across all instruments of power, stability operations, terrorism, leveraging soft airpower, realizing RPA capabilities, airpower investments, and building partnership capacity. This PPI-focused RAM is a tool to help the military strategist systematically illuminate the dark alleyways of history and anticipate the future. Moreover, the ever-growing complexities of warfare require more deliberate focus on each actor's paradigms, perceptions and interpretation of information during consideration of relevant theory. As military strategists look to the future, Sun Tzu's auspicious confidence can only be attained through comparable sagacity.

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