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"Gut Feel"
Recognition Decision Making
and the Operational Commander

by
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A paper submitted to the Faculty of the Naval War college in the partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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ABSTRACT

The decisive military leader has long captured the imagination of the public and military professionals. But in a world where decision making is increasingly dominated by technology and analysis, the concept of decision making by "gut feel" may be regarded by some as an anachronism. Yet, others contend that technology and modern warfare have made analytical decision making ponderous and inflexible. More than ever, commanders will need to rely on their judgment and intuition.

This paper examines the role of intuition and its relevance to today's military decision making at the operational level. It discusses the behavioral concepts of intuition and the relationship between intuition, military doctrine and theory. Finally, a decision making process utilizing many of the concepts developed in the paper is offered as an alternative to the estimate planning process.

Prologue

On June 4, 1944, General Eisenhower gathered with his commanders and senior staff to discuss the likelihood of another postponement to the Allied invasion of "Fortress Europe". Eisenhower's lead meteorologist, Group Captain Staff J. M. Stagg, a "dour but canny Scot" briefed the Supreme Commander on the forecast for next two days.¹ He told Eisenhower that he expected the weather to clear for 36 hours, providing a window of opportunity that would permit safe landing operations on the French beaches, but that persistent cloud cover would limit aircraft bomber support.² Ike's commanders and senior staff were concerned: surely an invasion of this magnitude depended on nothing less than optimal conditions.

Just as consensus was gathering to delay the operation (again), Admiral Alan G. Kirk, commanding the U.S. task force reminded Eisenhower that the decision to sortie to sea must be made within two hours in order for the ships to be in place for a 6 June landing. Another postponement would mean a 48 hour delay, pushing the invasion back to June 8, an unacceptable date because the tides would not be right for amphibious operations. The next opportunity would not come for nearly two weeks, and even then, there was no assurance the weather would be suitable.

At 2145 the scene at Allied Headquarters was tense, as Eisenhower pondered the fate of a landing force of 8 divisions, 6500 ships, and 12,000 aircraft. One last time Eisenhower asked his commanders and senior staff for their recommendations;

1. Dwight D. Eisenhower, Crusade in Europe (New York: Doubleday), 249.

2. Stephen E. Ambrose, Eisenhower Vol.I (New York: Touchstone), 307.

Montgomery was characteristically blunt, "I would say -- Go!"; Air Marshal Tedder thought the cloud cover made the landing chancy. Ike's chief of staff General Bedell Smith remarked, "It's a helluva gamble, but it's the best possible gamble."³

As Eisenhower pondered the decision, Smith was struck by the "loneliness and isolation of a commander at a time when such a momentous decision was to be taken by him, with full knowledge that failure or success rests on his individual decision."⁴

Eisenhower looked about the room one more time before quietly announcing, "I am quite positive that the order must be given."⁵ Within minutes the fleet was notified and again sortied to sea.

In his memoirs, Eisenhower gives little personal insight into his decision. He matter-of-factly concluded that, "the consequences of the delay justified great risk and I quickly announced the decision to go ahead with the attack on June 6."⁶ The decision on "one of the momentous days in the history of war" was irrevocable.⁷

As the generals and admirals rushed from the briefing to begin readying ships, soldiers and aircraft, Eisenhower was left alone in the briefing room. His biographer, Stephen Ambrose described the scene, "A minute earlier he had been the most

³ Ibid., 307-308.

⁴ Ibid., 308.

⁵ Ibid., 308.

⁶ Eisenhower, 250. A 3 June 1944 diary entry notes "Probably no one who does not have to bear the specific and direct responsibility of making the final decision as to what to do can understand the intensity of these burdens." Ike also seems to have made up his mind on June 3, that unless the weather deteriorated further, he planned to go on the next high tide (6 June).

⁷ J.M. Stagg, Forecast for Overlord June 6, 1944 (New York: W.W. Norton), 1971, 6.

powerful man in the world. Upon his word the fate of millions depended. The moment he uttered the word, however, he was powerless. He could only sit and wait."⁸

Introduction

Many of us have been inspired and fascinated with examples of military leaders whose professionalism have epitomized the values of courage, self control, decisive action, and leadership. The romantic image of the lone commander at the verge of a decision that would turn the tide of war is an enduring part of our military ethos. Yet many today consider the decisive leader an anachronism; a loose cannon whose elan and skill at the tactical level may prove dangerous at the operational level.

Modern warfare is complex, expensive and if left unmanaged can escalate to tragic finality. To manage the complexities of war, militaries have developed bureaucracies (general staffs), systems and doctrine to effectively plan and manage warmaking. Analytical decision making is a core element of war planning. The adoption of the Commander's Estimate of the the Situation (CES) by the Army College and Naval War College in the early 1900s, and subsequent refinements in curriculum and doctrine have stood the test of time.

Yet, Clausewitz reminds us that war is dominated by chance, uncertainty and friction, and although plans should be prepared, forecasting war is impossible and the intuition of the commander is as important as rational planning.⁹ For today's operational

8. Ambrose, 308-309.

9. Michael I. Handel, Masters of War: Sun Tzu, Clausewitz and Jomini (London: Frank Cass, 1992), 130.

commander there remains a realm of decision making that defies number crunching and simply selecting the staff's "optimal solution". This paper will examine the role of intuition and its relevance to today's military decision making at the operational level. It will discuss the behavioral concepts of intuition and the relationship between intuition, military doctrine and theory. Finally, a decision making process utilizing many of the concepts developed in the paper will be offered as an alternative to the estimate planning process.

Intuition - What is it?

The purpose of this discussion is to give an overview of the intuitive thought process. It is not meant to be a psychological treatise, but rather is intended to provide background discussion on how behavior influences the intuitive decision process.¹⁰

Decision making is generally done at two levels, analytical or recognition. Analytical decision making (ADM) is an algorithm process based on a specific set of rules for the solution of a problem.¹¹ The rise of operational analysis during World War II to solve complex problems was readily adopted by the military and the business world to quantify success, and predict risk and failure. Operational analysis is very effective in creating workable solutions for complex problems, but the process takes an enormous

10. There are several factors that effect human behavior including psychology, sociology, history and anthropology. Harvard professors Richard Neustadt and Ernest May have developed useful historical "tools" that can aid the decision maker. See also Captain F. Freeman Marvin's "Using History in Military Decision Making," Military Digest, June 1988 for application of Neustadt and May's concepts to military decision making.

11. Michael D. Armour, "Decision Making Processes," Military Review, April 1994, 70-71.

amount of time and is not conducive to rapid decision making.¹²

"Intuition" is defined by Webster as " The act or faculty of knowing without the use of rational processes; immediate cognition." Intuition or "Recognition Decision Making" (RDM), is the subconscious ability to rapidly sift through your memory bank of past experiences in order to make a decision.¹³

In general, intuitive decision making is based on the perceptions and experiences of the decision maker. Good decisions likely depend on the on emotional, physical, rational and some would include the moral state, of the decision maker. The major strength of the process is that it mirrors human thought, and is adaptive to situations that require quick decisions based on limited information. Its greatest weakness is that the decision making process depends on the perceptions and experiences of one person.

One way we acquire knowledge and make decisions is from our experiences. Psychologists have determined that the intuition effects the decision making process in three ways:

- Representative intuition: When faced with uncertain, situations, decision makers access stored long-term memories of similar problems and solutions. This method provides a excellent base to judge general outcomes, but users have a tendency to solve problems with the "SALY" approach (Same As Last Year).

- Availability intuition: Is the process whereby the decision maker recalls information from examples in memory. This is a useful technique that permits the decision maker, when

12. Ibid., 70.

13. Charles T. Rogers, "Intuition: An Imperative of Command", Military Review, March 1994, 39.

confronted with familiar situations to make quick decisions. The drawback is that faulty memory or personal preferences can skew assumptions and create a false impression of the situation.

• Simulation intuition: Is forecasting how an event will turn out, e.g. how would have World War II turned out if Germany would have developed the atomic bomb first. Decision makers either remove an unusual event from the scenario, bring an unlikely event into the scenario or replace one event for another. Problems arise when decision makers substitute favorable information for unfavorable facts and underestimate the consequences.¹⁴

Analytical vs. Recognition Decision Making

Given the relative strengths and weaknesses of the two decision making processes, it may be useful to see how they relate to military decision making. In general there are two major elements that influence the analytical decision making; time and information. Analytical decision making or "multi-attributal utility analysis" systematically creates options, identifies criteria, assigns weights and rates the best option.¹⁵ Using a prescribed methodology, such as the estimate process, the goal is to give the decision makers a series of courses of action, one of which may be the "optimal solution". In addition, it provides a series of branches, responses and counter responses to support any given course of action.

The analytical method is a useful tool in the hands of

¹⁴ . Amour, 71-72.

¹⁵ Gary A. Klein, "Strategies of Decision Making", Military Review, May 1989, 56.

novices and those unfamiliar with the problem. It probably is most useful for working complex problems where nothing less than the optimal answer will suffice. During the Cold War, a careful, sober, and thorough analysis of our national nuclear strategy was clearly preferable to any intuitive decision made by a single person (Dr. Strangelove perhaps).

Some critics argue that the estimate process is an anachronism - it simply takes too much time to complete the process and is unable to respond to unanticipated events. One author argues that the estimate process is highly dependent on "time factors, experience of the participants, available information and mission particulars", and that in today's warmaking and warfighting environment, commanders would rarely have the time to complete the detailed decision making steps outlined in service and joint doctrine.¹⁶

During World War II military planners had the luxury of carefully planning operations. The planning process of Sir Bernard L. Montgomery, one of the architects of the Allied victory, was "characterized as one of tremendous attention to detail, cautious and attritionist in nature."¹⁷

Today's planners and decision makers work from a different set of assumptions. Allied planning in World War II was characterized by large-scale attrition warfare and methodically developed campaigns that, in the later stages of the war, could tap into the nearly inexhaustible industrial power of the United States. Our present level of forces and readiness no longer is suitable for protracted, attrition warfare. Warfighting today

16. Armour, 70.

17. Rogers, 42.

relies on the principles of maneuver and surprise. Therefore, we must retain the ability to move faster through our decision loop than the enemy so that we can "shatter [their] cohesion through a series of rapid, violent and unexpected actions". It is vital that a commander make quick decisions in order to remain inside the enemy's decision loop: otherwise he has no chance of gaining or retaining the initiative.¹⁸

An alternative to analytical decision making, "recognition-decision making" (RDM) is a process that uses past experiences to quickly recognize problems and form decisions. Intuitive decision making is not new. It has been part of military leadership since Sun Tzu. Whereas analytical decision making is time and information dependent, RDM depends primarily on the experience of the decision maker.

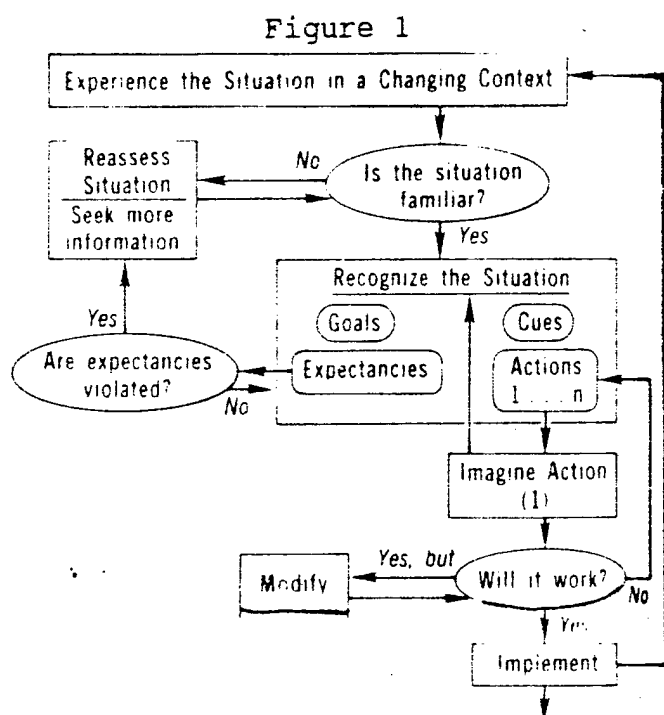
Studies of experienced military decision makers and other crisis managers have shown that the analytical processes are seldom used to make decisions. Researchers found that 85% of all decisions, at every level, are made in less than one minute: a pace too fast for even the most streamlined concurrent analysis process.¹⁹

In the May 1989 edition of "Military Review", psychologist Gary Klein reported that proficient decision makers, including those in the military, almost always rely on their experience as a basis for their decision making. When they are confronted with a problem, experienced decision makers seek to understand the nature of the situation, (novices tend to think about which response to select). First, they recognize what is familiar or typical about

18. Rogers, 41.

19. Klein, 58.

the situation, that in turn gives them a sense of what goals are feasible. Next they look for important cues, and ask themselves, "what do I expect to happen and what actions are typical in this situation?" They then consider any potential problems, and give the option a reality check for "reasonableness". If the decision is found defective, options will be replaced by the next most typical option until the decision maker comes to a workable, although not necessary the best, option -- a strategy Klein called "satisficing".



Recognition Decision Model²⁰

Klein's research found that experienced decision makers use this process 90% of the time for routine and non-routine decisions. RDM was found to work very well when experienced people are working under time pressure on "concrete, contextually

²⁰. Ibid., 58.

dependent tasks in a changing environment."²¹ It allowed them to quickly focus on the situation, rather than selecting among pre-developed options.

RDM's major disadvantage is that it does not work well for inexperienced decision makers. Novices use the process less than 40% of the time, and those who try it and are unsuccessful are seen as "shooting from the hip". Furthermore, RDM makes it difficult to articulate the basis of decisions to others, or to justify courses of action and reconcile conflicts. Because the process is situational, and does not seek the "optimal" course of action, it is not effective in addressing long term problems.

Military Theory

The masters of military theory, Clausewitz and Sun Tzu, attached considerable importance to the intuitive ability of the commander. Clausewitz's "military genius" possessed two indispensable qualities:

"First, an intellect that, even in the darkest hour, retains some glimmerings of the inner light which leads to truth and second the courage to follow this faint light where ever it may lead. The first of these qualities is described by the French term, *coup d'oeil*; the second is determination."²²

Sun Tzu admired more the tangible qualities of steadiness, resolution, stability, calmness and rationality. But he warned that;

"A general unable to estimate his capabilities or comprehend the arts of expediency and flexibility when faced with opportunity to engage the enemy,

21. Ibid., 63.

22. Carl Von Clausewitz, On War (Princeton N.J.: 1984), 102.

will advance in a stumbling and hesitant manner, looking anxiously first to his right and then to his left, and be unable to produce a plan . . . he will place confidence in unreliable reports, believing at one this and at another that."²³

In our own military history, many generals and admirals have walked the fine line between recklessness (Custer) and decisiveness (Eisenhower). Perhaps no senior military officer relied more on his own experience and intuition to plan and execute major operations and campaigns than did General U. S. Grant. He was by all accounts a "one man show", often eschewing staff and subordinate recommendations in favor of his own, personally developed plan.

Grant was a student of map reading and had appreciation for the physical features of the battlefield. Together with his ability to recall, in detail, entire battles and campaigns from antiquity to the present, he could clearly envision the enemy's strengths and weaknesses and form in his mind an effective plan.

His confidence in his ability to assimilate information, comprehend the situation, understand his opponents (he personally knew many of the Confederate Officers), led to a successful "low risk, high cost" strategy that was decisive.²⁴ His ability to develop a fingertip "feel" for battle was evident at Shiloh, where he was faced with a quickly disintegrating Union front. He countermanded Buell's call for a retreat, and instead pressed the attack, surmising (correctly), the Confederates were in worse

23. Sun Tzu, The Art of War (Oxford: Oxford Press), 87-88.

24. Steven Metz, "Analyzing Strategic and Operational Risk", Military Review, November 1991, 80.

shape than his troops.²⁵ Throughout the war, personal experience and intuition were Grant's touchstone for victory.

Doctrine

The role intuition plays in decision making is not mystical, nor mysterious. Intuitive leadership is a concrete concept that is part of service and joint doctrine. Service doctrine emphasizes intuition as an "act" of decision making and ties the process to concepts of command and leadership that are applicable at the strategic, operational and tactical levels of war. Army Field Manual (FM100-5) states that command has two vital components, decision making and leadership. "Decision making is knowing if to decide, then when, and what to decide."²⁶ Command is defined more as an "art than a science", and that in battle, decision and command are often guided by "intuition and feel gained from years of practice and study."²⁷

In clear, unambiguous prose, the The Marine Corps manual, "Warfighting" states;

"A military decision is not merely a mathematical computation. Decision making requires both the intuitive skill to recognize and analyze the senses of given problem and the creative ability to devise a practical solution. This ability is the product of experience, education, intelligence, boldness, perception and character."²⁸

While service doctrine emphasizes the "act" of decision

25. John Keegan, The Mask of Command (New York: Penguin), 1988.

26. Department of the Army, Operations, FM-100-5 (Headquarters. Department of the Army: Washington D.C. 1993, 2-14 to 2-15.

27. Ibid., 2-15.

28. Department of the Navy, Headquarters, United States Marine Corps. Warfighting, FMFM1 (Headquarters USMC, Washington D.C.: 1989, 69.

making, and values experience and intuition, decision making at the operational level relies more on the formal analytical process. At this level decision making is the process to "translate the selected courses of action into a concise statement of what the force, as a whole, is to do and explain, as may be appropriate, the following elements: when, where, how and why."²⁹

Some critics have argued that the analytical process is too ponderous and has no place in today's operational decision making. Presumably, technology would expedite the process, but the opposite appears to be the case; "the more information you give a commander, the more reluctant he is to make decisions."³⁰ Klein points out that analytical decision making is bankrupt because the traditional decision making processes have produced "unused decision aids, ineffective decision training programs and inappropriate doctrine."³¹ He suggests the more appropriate course is to develop doctrine that utilizes a variety of decision strategies, including use of recognition decision making.

An Alternative Strategy for Recognition Decision Making

A British Army officer observed that the "analytical approach to decision making seems to run contrary to the requirements of the modern battlefield and in particular, the battlefield commander, who seem to require a quicker, more

29. Joint Chiefs of Staff, Doctrine for Joint Operations (JCS: Washington, D.C.:1995), B-3. U.S. Navy interpretation of a commander's decision is similar to Joint Doctrine. However NWP 11 (Rev.F) (Operations Planning) also recognizes that if situations arise where planning is not feasible, "Habit and doctrine replace the intermediate steps between recognition of the problems and its solution." (p. 1-3).

30. Rogers, 38.

31. Klein, 56.

imaginative and instinctive approach to decision making."³² In a world of nanoseconds, bits and bytes, the analytical decision making process has become as clumsy as an adding machine. Furthermore, dogmatic devotion to an outmoded system may produce commanders unable to respond to unforeseen circumstances, and hesitant to take the initiative in order to generate "friction" that will confuse and throw their opponents off balance.

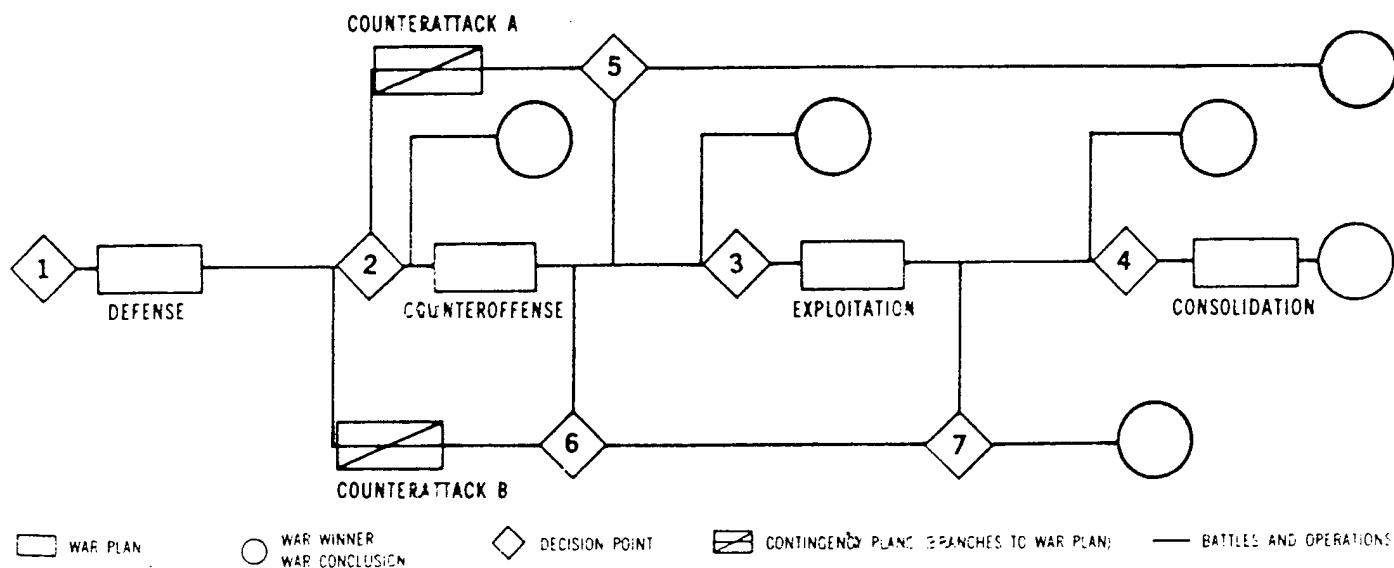
To better respond to the demands of modern warfare, LCOL Timothy McMahon, in an article entitled "Decision Making in Modern War" suggested that before war commences, the commander should create a "decision road map" to identify how he/she intends to fight the war. The goal of the process is to synchronize planning and fighting by creating conditions at key decision points that will result in victory.

The road map consist of three elements: (a) decision points, e.g. when to conduct the counteroffensive, when to exploit etc.; (b) conditions associated to support the objective, e.g. counteroffensive, exploitation, consolidation; and (c) most important, clearly defined "war winners" that lead to the commander's vision of victory.(Figure 2) The process begins with the formulation of the commander's intent, the desired result of the operation. All subsequent planning is then focused on creating the required conditions at designated decision points. Unlike the reactive estimate process, the "road map" is proactive and develops the most plausible courses of action. These courses of action depend not on "facts" and options developed by the

32. Ibid., 39.

staff, but on the commander's war objectives.³³

Figure 2



Decision Architecture³⁴

This process creates a fundamental change in the relationship between the commander and his staff. Usually, staff planning drives command decision making. Many commanders, most of whom have served in staff assignments, accept the predictable, safe but often unimaginative courses of action. The result is that staffs tend to "push" the commander's decision making. LCOL McMahon's decision architecture establishes a culture of command "pull", in which the commander tasks the staff with defining what conditions must be created at decision points to achieve victory. To create the dynamics of command "pull", an effective commander's intent should express the desired end state, understanding of his

33. Timothy L. McMahon, "Decision Making in Modern War," Military Review, October 1986, 33-37.

34. Ibid., 35.

superior's intent and use the commander's experiences and knowledge to "emphasize the effect he wants to have on the enemy and his design for doing that".³⁵

Staffs and the estimate process continue to play a role in decision making, but rather than providing courses of action, they strive to give the commander an understanding of the facts and the problems facing him. Similarly, the estimate process can be used more effectively as a staff "tool" that can clarify intelligence, logistics, etc. and indicate difficulties and ways to overcome them.

Figure 2 suggests a "typical" road map. It contains contingency plans and several "paths" leading toward victory, (note a war winner can occur at more than one point). The value of this process is that it can answer one of the commander's most vexing questions: "Are we winning?" Using this scheme the answer does not depend on battle damage assessments and other time consuming, and often faulty analysis. Instead the commander mentally computes his progress on the decision map to calculate his/her progress.

The natural criticism of the decision architecture is that it does not allow for the vagaries of war. Indeed scripted scenarios generally fail upon first contact with the enemy. The value of the decision road map is that it is not a recipe. It is a forward leaning process that permits the commander (and staff) to start from common ground and work back to develop war plans, war winners, phasing, decision points, and contingency plans. The plan can be simple (a single line from beginning to end) or

35. Rogers, 47.

complex (addressing intermediate decisions, contingencies, etc.). However, the key elements, (decision points, conditions associated with those points, and war winners) remain the same. The result is an effective war plan that is flexible, yet remains focused on specific objectives. And like any good road map, it not only shows you how to get to your destination, but also shows you where you are, and where you have been.

Conclusion

The differences between the analytical and recognition (intuitive) decision making are both problematic and profound. It's hard to argue with the results of the estimate system: it is the way we planned and won World War II and Desert Storm. Yet technology is reducing the amount of time staffs have to gather information, evaluate data, and develop analytically sound decision options for the commander.

A "fast" estimate process is an oxymoron. Advanced technologies may give tomorrow's commander more information faster, but the same access to information may paralyze commanders and their staffs who await vital information that usually never arrives (paralysis by analysis).³⁶ Despite the U.S. military's reliance on technology, it is likely our most important commodity will continue to be the experience, flexibility, judgment and intuitive ability of our operational commanders.

Are we doing all that we can to develop the traits needed for making decisions in the "violent, fast-paced and confusion of fighting a modern war"?³⁷ How will we grow tomorrow's Nimitz',

36. Ibid., 44.

37. McMahon, 37.

Eisenhowers, Powells and Schwarzkopfs? Are we serving our nation's best interests by assigning our best and brightest to high level staffs? Or should we expose our future commanders to a variety of situations that would allow them to build up a bank of background knowledge by practicing warfighting, studying doctrine and spending more time in the field?

Today's military leaders need to become teachers, as well as warfighters. It is up to them to impart their insight and experience to a new generation of military leaders. Our training programs must give young men and women an opportunity to develop intuitive decision making skills without fear of failure. An atmosphere of "zero defects" not only stifles creativity and initiative, but sends a message to future admirals and generals, that success comes only to those who thoroughly analyze, calculate and justify every decision.

The value of developing intuitive leadership is not just a matter of efficiency; although there are ample reasons to believe that time constraints will require a different approach to the operational decision making. Given the complexity of modern warfare, analysis will remain an important planning tool. It would be irresponsible for operational commanders to assume they can just "wing it" in the next MRC. However, over-reliance on systems and analysis may create expectations that all problems need to be carefully analyzed before decisions are made. We may not have that luxury in the next war. The challenge will be to develop intuitive skills in our future commanders, so when faced with tough decisions, they, like Eisenhower, can state with assurance, "I am quite positive the order must be given."

Bibliography

- Ambrose, Stephen E. Eisenhower, Vol. I, 1890-1952. New York: Touchstone, 1988.
- Armour, Michael, D. "Decision Making Processes." Military Review, April 1994, 70-74.
- Brenner, Reuven. Betting on Ideas. Chicago: University of Chicago Press, 1985.
- Byrd, Richard E. A Guide to Personal Risk Taking. New York: American Management Association, 1974.
- Cohen, Eliot A. and Gooch, John. Military Misfortunes: The Anatomy of Failure in War. New York: Vintage, 1990.
- Department of the Navy, Naval Warfare Publication (NWP-11(F)), Operational Planning. Washington D.C. September 1991.
- Department of the Navy, Headquarters United States Marine Corps, Warfighting, FMFM 1. Washington D.C. March 1989.
- Eisenhower, Dwight D. Crusade in Europe. New York: Doubleday & Company, 1948.
- Ferrel, Robert H. The Eisenhower Diaries. New York and London: W. W. Norton & Company, 1981.
- Freeman Marvin F. "Using History in Military Decision Making." Military Review, June 1988, 23-33.
- Griffin, Samuel B., ed. Sun Tzu, The Art of War. Oxford: Oxford University Press, 1971.
- Howard, Michael and Paret, Peter., eds. Carl Von Clausewitz: On War. Princeton University Press, Princeton N.J., 1984.
- Jeffries, William C. "Myers Briggs Tests." Lecture. U.S. Naval War College, Newport R.I.: March, 1996.
- Joint Military Operations Department, U.S. Naval War College, "Operational Decision Making." Unpublished paper. U.S. Naval War College, Newport RI: 1996.
- Handel, Michael I. Masters of War: Sun Tzu, Clausewitz and Jomini. London and Portland, Oregon: Frank Cass, 1992.
- Headquarter Department of the Army, FM100-5, Operations.

- Headquarters Department of the Army, Washington D.C., June 1993.
- Hennies, Clyde A. and Dierberger, Paul A. "Risk Management: A Key Battlefield Edge." Military Review, May 1992, 32-39.
- Joint Military Operations Department, U.S. Naval War College, "Operational Decision Making." Unpublished paper. U.S. Naval War College, Newport RI: 1996.
- Keegan, John. The Mask of Command. New York: Penguin, 1987.
- Keyes, Ralph. Chancing It: Why we take Risks. Boston and Toronto: Little, Brown and Company, 1985.
- Klein, Gary A. "Strategies of Decision Making." Military Review, May 1989, 56-64.
- MacCrimmon, Kenneth, Wehrung, Donald A. Taking Risks: The Management of Uncertainty. New York: The Free Press, 1986.
- McMahon, Timothy L. "Decision Making in Modern War." Military Review, October 1986, 33-37.
- Metz Steven, "Analyzing Strategic and Operational Risk." Military Review, November 1991, 78-80.
- Neustadt, Richard E., and May, Ernest R., Thinking in Time. New York: Free Press, 1986.
- Remson, Andrew Cunningham. "What Wins Battles?" Army Information Digest, October 1951, 61-64.
- Rogers, Charles T. "Intuition: An Imperative of Command." Military Review, March 1994, 39-50.
- Stagg, J. M., Forecast for Overlord, June 6, 1944. New York: W.W. Norton & Company Inc., 1971.
- U. S. Joint Chiefs of Staff, Doctrine for Joint Operations, Joint Pub 3-0. Washington D.C.:1995.