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OPERATIONAL RISK MANAGEMENT

INCREASING MISSION EFFECTIVENESS THROUGH IMPROVED PLANNING AND EXECUTION OF JOINT OPERATIONS

by

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

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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ORM is an analytical process to improve risk assessment and better manage operational risk. ORM is composed of five steps: identifying hazards, making risk assessments, making risk decisions, implementing controls, and supervising effectiveness. The ORM process is performed on a time-critical, deliberate, or in-depth level depending on the time available. Four principles which guide the employment of ORM are to accept risk when benefits outweigh the cost, accept no unnecessary risk, anticipate and manage risk by planning, and make risk decisions at the right level. Commanders manage risk wisely to conserve combat power for bold execution of joint operations plans.

The paper concludes that Operational Risk Management should be formally adopted into the deliberate and crisis action joint planning processes. Through training, ORM can become ingrained and intuitive to military commanders at the operational level. Better management of operational risk will improve mission effectiveness of joint forces while supporting national foreign policy and strategy in operations around the globe.

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ABSTRACT

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I. INTRODUCTION

United States Armed Forces are supporting national strategic objectives, protecting and advancing interests abroad by operating throughout the world in numerous operations at any one time. Doctrinal goals for the military are articulated by the Joint Staff in *Joint Vision 2010*, a "conceptual template . . . to achieve new levels of effectiveness in joint warfighting." Implementing that vision entails dominating maneuver, engaging precisely, focusing logistics, and providing full-dimensional force protection across the entire spectrum of operations from high intensity conflict to humanitarian assistance.[1]

Since the Gulf War, military operations have tended to the low intensity end of the spectrum encompassing Military Operations Other Than War (MOOTW). Combat effectiveness is the measuring stick by which operational art has traditionally been evaluated. Now that MOOTW is gaining in popularity, "non-combat effectiveness" is also relevant. The term "mission effectiveness" better defines a measure of success in achieving mission objectives aligned with the commander's intent and arriving at the desired end-state.

History shows that mission effectiveness is diluted by excessive risks and costs taking their toll on own and friendly forces in theater. During Operations Desert Shield/Desert Storm, over half of the naval aircraft and aviation personnel losses were due to mishaps.[2] A task for the operational commander and staff planner is to reduce operational risk to an acceptable level consistent with mission accomplishment; the problem is defining "acceptable" when deciding on courses of action. For those seeking specific guidance on how to reduce risk in planning and executing joint operations, there are insufficient answers within our joint doctrine.

The focus of this paper is on redressing the current lack of procedural guidelines in joint doctrine for assessing and managing operational risk. Operational Risk Management (ORM) is an existing tool which should be formally adopted into joint doctrine to provide a specific, standardized method of identifying and assessing risks and costs of various courses of action. Wiser operational risk decision-making and astute control of risks and costs will minimize force and asset losses and mission degradation. Better planning and execution of combat and non-combat joint operations will increase the mission effectiveness of our joint forces in today's increasingly uncertain global environment.

II. INSUFFICIENT DOCTRINAL GUIDANCE

> *In general, guidance should clearly define the aims to be accomplished, resources available in terms of time and space,* methods *and weapons* to be used, *and constraints.* (emphasis mine)
>
> --Milan Vego, "Fundamentals of Operational Design"

The Question of Risk

At the Naval War College, question #4 of "the four questions of operational art" asks, "What is the likely cost or risk in performing that sequence of actions [used to produce the military condition which will achieve the strategic goal(s) in theater]?"[3] For the joint warfighter looking to answer this question, the guidance currently provided is slim.

Joint Pub 3-0, *Doctrine for Joint Operations,* directs Joint Force Commanders (JFCs) to concern themselves with risk reduction during *planning*:

> *Risk is inherent in military operations. In peacetime operations, commanders consider a variety of risks--such as the implications of failure to national prestige or to joint force morale, or risk to the safety of individual joint force members.*
>
> *In combat or potential combat situations, commanders carefully identify conditions that constitute success--both for the envisioned end state and for the major operations or stages that lead to that end state. To the extent that these conditions are met, commanders reduce the risk. When these conditions are not met, or only partially met, commanders identify the risk associated with continuing. To alleviate risk, commanders may apply additional force--by reallocating combat forces or by shifting supporting operations, for example. Or they may decide that risk is unacceptable.*

> *Commanders consider many factors as they identify risk in combat or potential combat situations. As in peacetime operations, commanders consider the risk to joint force members. It is for this reason, in part, that an indirect approach to enemy centers of gravity, attacking enemy vulnerabilities rather than strengths, is important in the design of campaigns and major operations.*[4]

Unfortunately, the guidance on managing risk during *execution* of operations is restricted to considering safety and reduction of fratricide at the outset of combat.[5] NDP-1, *Naval Warfare,* does a better job of discussing the need to employ risk assessment and risk management as sound operational decision-making tools:

> By its nature, the uncertainty of war invariably involves the acceptance of risk. . . . We are sometimes placed in a position of weighing certainty in outcome against the benefits of taking prompt action. . . . Prompt, decisive action can have significant advantages in keeping ahead of the enemy's decision-and-action cycle. The risk of uncertainty in our decisions must be balanced by the gains of striking during a fleeting window of opportunity. Every commander can expect to be faced with accepting a certain level of risk in conflict. We assess risk to the overall mission and to the individuals involved in the task continuously during execution as well as during formal advanced planning.
>
> Risk management and risk assessment are formal, essential tools of operational planning. Sound decisionmaking requires the use of these tools both in battle and in training. Naval commanders evaluate risk by using combinations of real-time, deliberate, and in-depth assessments to determine the cumulative effect on the mission and seek ways to eliminate or control unnecessary hazards to their forces. . . . Because risk is often related to gain, leaders weigh the risks against the benefits to be obtained from an operation, recognizing that unnecessary risk can be as great a hindrance to mission success as enemy action. On the other hand, carefully identifying the risks, analyzing and controlling as many factors as possible, and executing a supervised plan that accounts for these factors have contributed to the success of some of the greatest military operations in history.[6]

The guidance identifies a need but does not fill it. There is still a lack of *specific* guidance on *how* to assess and manage operational risk.[7] To find a solution, a closer look at the joint planning process is required to determine the point where these "formal, essential" risk assessments are made and to see if a method exists for making them.

Addressing Risk in Joint Planning

If risk assessment and risk management are formal tools of operational planning, they must be part of the three types of interrelated planning that comprise the joint planning

process: campaign planning, deliberate planning, and crisis action planning. Campaign planning articulates the combatant commander's strategic vision for the theater and encompasses both the deliberate and crisis action planning processes. Deliberate planning is primarily a peacetime evolution which develops joint operation plans for contingencies based upon information and forces apportioned in the Joint Strategic Capabilities Plan (JSCP). Crisis action planning is conducted in time-critical situations based on current events; it uses assigned, attached, and allocated forces and resources to execute a response.[8]

Deliberate plans consist of OPLANs (complete and detailed operation plans); CONPLANs (abbreviated operational conceptual plans) with or without TPFDDs (Time-Phased Force Deployment Data, detailed plans for phased deployment of forces/resources); and functional plans (standard peacetime military operations in a permissive environment). Crisis action plans consist of campaign plans, which are finalized in response to a crisis, and operation orders (OPORDs), which are coordinated execution directives issued to subordinate commanders for an operation.

If they existed, risk assessment procedures and risk management techniques would also have to be integrated into the Joint Operation Planning and Execution System (JOPES). JOPES facilitates planning with automatic data processing (ADP) support and worldwide deployment databases; it encompasses the entire Joint Planning and Execution Community (JPEC) from the President down to the subordinate unified commanders, component commanders, transportation and other supporting commanders.[9]

All joint operation plans must conform with the criteria of adequacy, feasibility, and acceptability and compliance with joint doctrine. Adequacy establishes that the plan satisfies

the tasking and accomplishes the mission. Feasibility ensures tasks can be accomplished with available resources within the time frame conceived. *Acceptability* checks that plans are proportional and *worth the anticipated cost without incurring excessive losses* of personnel, equipment, materiel, time, or position.[10]

The test for acceptability is where the evaluation of risk is made during the preparation of different types of joint operation plans. According to Joint Pub 5-0, *Doctrine for Planning Joint Operations*, the test for acceptability is applied during the course of action (COA) development phase of the joint plan.[11] The joint operation planner applies the test of acceptability to determine the risk in each prospective course of action.

A step-by-step tool employed to help develop COAs in deliberate plans is the Commander's Estimate (of the Situation); it is equally useful for crisis action planning. In either case, the Commander's Estimate helps clarify the situation and facilitate force comparisons, with the ultimate goal of developing an acceptable plan.[12] Developing courses of action that incorporate risk assessment and risk management is as critical in planning for MOOTW as it is in planning for war.[13]

It is the operational commander's duty to decide what "acceptable" means based on the operational conditions and her understanding of the mission objectives. Unfortunately, the *method* for determining acceptability is still lacking precise definitions of "anticipated cost" or "excessive losses." A more analytical way to establish those definitions is still needed to reduce the subjectivity inherent in defining risks and costs.

The Joint Staff Officer's Guide describes a brief acceptability test for courses of action but has only an abbreviated format for the Commander's Estimate; it refers the

planner to Joint Pub 5-03.1, *JOPES Volume I, Planning Policies and Procedures.*[14] This planning document, which should be the definitive work on detailed planning procedures, unfortunately provides no useful guidance to the commander or planner on methods of risk assessment or risk management in joint operation plans. It is apparently not incorporated into the JOPES system.

The joint doctrinal guidance trail ends here. The commander is doctrinally tasked to assess and manage operational risk to determine the cumulative effect on the mission, yet he is not given the tools to do so. A better definition of operational risk, a logical method for assessing it, and a discussion of risk controls is still missing. Now is the time for an expanded operational concept that will fix this deficiency.

III. OPERATIONAL RISK MANAGEMENT (ORM)[15]

> *Future joint doctrine must articulate the process required for successful joint planning but must be flexible enough to serve as a broad framework to guide our forces in [illegible] and multinational operations. It is the key to enhanced jointness because it transforms technology, new ideas, and operational concepts into joint capabilities.*
>
> --Joint Chiefs of Staff, *Joint Vision 2010*

The solution to the lack of procedural guidance for assessing and managing risk in planning and executing joint operations is Operational Risk Management. The ORM process is a decision-making tool which uses baseline knowledge and experience to increase operational mission effectiveness by anticipating hazards and reducing the potential for loss. The initial focus is on identifying and assessing hazards, where a hazard is defined as a condition with the potential to cause injury, death, property damage, or mission degradation. Risks are expressed in terms of hazard severity and loss probability. Costs are losses or penalties incurred in gaining a benefit.[16] Risk assessment is the process of detecting hazards

and assessing associated risks. *The goal of the process is to make smart risk decisions which reduce risk to acceptable levels commensurate with mission accomplishment.*

The ORM process is composed of five steps: identifying hazards, making risk assessments, making risk decisions, implementing controls, and supervising. It incorporates four guiding principles: accept risk when benefits outweigh the cost, accept no unnecessary risk, anticipate and manage risk by planning, and make risk decisions at the right level. While planners may make recommendations, the commander directly responsible for the operation makes the risk management decisions. Any excess risk is eliminated.

Although conceived as a safety process to prevent mishaps, the method is suitable for use in planning and executing military operations at the Joint Force Commander level with minor modification. The Army Command and General Staff College has recently understood the value of applying risk assessment and risk management techniques to fill the void in procedural guidance for tests of acceptability. Their new student text, *Command and Staff Decision Processes*, is an interim guide that includes ORM concepts under a slightly different moniker. Although not without flaws, the five steps are used while war-gaming courses of action for analysis and comparison. Their view:

> Risk assessment requires a problem-solving method which identifies areas presenting the highest risk to force protection. It is a detailed analysis of each COA's C2 [command and control] and P2 [procedural and positive] measures. . . . Risk management identifies actions which could help commanders eliminate, reduce, or minimize risk while maximizing force protection. Planners war game a COA and then perform risk assessment before they proceed to the next one. From this analysis, the staff considers the conditions most likely to cause mission failure or fratricide.[17]

Other valuable concepts of Operational Risk Management are unfortunately left out. As previously mentioned, ORM is performed on one of three relative levels: time-critical,

deliberate, and in-depth. The operational commander chooses the appropriate level based on the situation, time available, personnel proficiency and assets available.[18]

Time-critical ORM is a quick mental or oral review of the five step process. It is the normal level used during the execution phase of major operations and is particularly useful in response to unplanned events.[19] While suited for use by a commander in battle, a deeper level of Operational Risk Management is appropriate for joint planning.[20]

Deliberate ORM is used by experienced personnel to brainstorm risk solutions. It is most effective in groups and is the appropriate level of ORM to use during crisis action planning as well as during the more traditional deliberate planning of known upcoming major operations via OPLANs or CONPLANs. During a crisis where the response is based on an existing OPLAN or CONPLAN, the Commander's Estimate done during previous deliberate planning may include COA development that is still valid or requires only minor modification. Campaign plans and OPORDs articulate the course of action chosen after risk reduction.

In-depth ORM is a deeper iteration of the deliberate process with a more thorough risk assessment using statistical data, diagram and analysis tools, formal testing and long-term tracking of operational hazards. It is more appropriate for long-term functional planning of complex operations and should be incorporated into JOPES for major AOR peacetime operational planning at the theater commander-in-chief (CINC) level. The ADP system is designed to accept feedback in the form of lessons learned and modified databases to benefit future users. Figure 1 is a flow chart of the step-by-step process of deliberate or in-depth ORM used during planning:

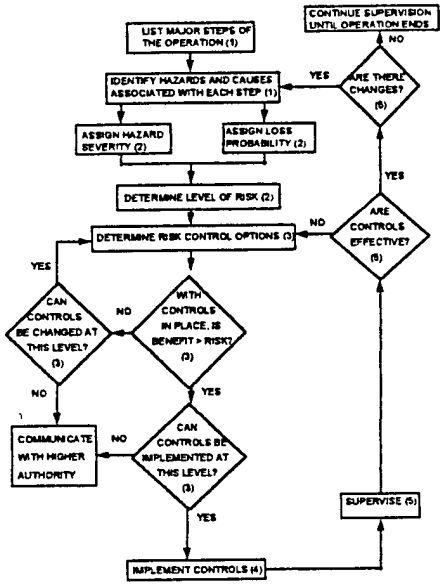

Figure 1: Deliberate Or In-Depth Operational Risk Management Flow Chart[21]

IV. PLANNING JOINT OPERATIONS--THE FIVE STEPS OF ORM

As the U. S. military expands its emphasis on exercising and operating in joint and combined teams around the globe, the requirement to accurately identify and manage real world risk grows. The commander tasked with planning a joint operation will contemplate a variety of risks based on the regional and local situation. In addition to military risks, a growing number of political, diplomatic, economic, and environmental risks face the commander at the operational level. Strategic and tactical risks must also be addressed to the extent they affect operational planning.

Typical risks faced by today's joint force include the threat of attack by weapons of mass destruction (WMD), the hazards of living and working in third world countries under the threat of terrorism or uncertain popular environments, possible fratricide to or from unfamiliar own or friendly forces, the risks of antagonizing U. S. allies due to

misunderstandings such as inappropriate cultural behavior, proximity to "hostile neutral" countries and their weapons, and difficulties related to restriction or freedom of action under rules of engagement (ROE). ORM provides a standardized, structured method for analyzing a myriad of situational risks to facilitate educated risk decision planning and reduction to mission-essential risk.

There are conceptual differences between risks and hazards. *Operational hazards are those conditions with the potential to cause operational losses* in one or more of the following four basic categories: combat casualties and losses, accidents, fratricide, and abstract losses of advantage such as loss of time, tempo, or position. Within each of those loss categories are similar types of hazards: hazards to forces/people; hazards to assets/platforms; hazards to materiel/resources; and hazards to plans or actions.

Operational risk can be defined as an expression of possible operational loss in terms of severity and probability.[22] Operational risks are those which have the *potential to affect the success of the mission.* In risk theory, risk is broken down into two basic types: risks which are chosen or taken, and risks which are endured or to which one is exposed. This leads to a distinction between "taking risks" and "being at risk" which must be clear in the minds of the planners.[23] The challenge is to identify those hazards that are relevant (impact mission success) and whose risks (hazard severity and probability) can be controlled in some way, either through avoidance, choice of alternate course of action, or protection.[24] Some factors to consider include force composition, operational conditions, personnel/organization proficiency, accident frequency, complexity of movement, and level of planning.[25]

A good plan has branches of possible scenarios and corresponding sequels of action to respond to those changes. A staff "what ifs" during war-gaming to thoroughly analyze the situation and identify possible enemy courses of action. Friendly courses of action keep the goal of ORM firmly in mind by answering key questions: What will improve operational effectiveness? How best can we economize force while concentrating combat power at the decisive point and time? How do we unify our effort? Which risks are worth the cost?

Step 1: Identifying Hazards at the Operational Level

The first step in operational hazard identification is to list the major steps, critical events, and decision points in each prospective COA or operation, then identify all hazards associated with each step and the possible causes for each hazard. Relevant hazards should be focused on, with the goal of identifying and controlling risk. "This procedure helps detect specific hazards associated with all specified and implied tasks so the staff can determine the best force protection against them."[26]

For an exaggerated example, during deployment of a mechanized corps to a forward area in the desert, the hazards of insufficient water are more relevant and controllable than the hazard of an earthquake. While the hazard severity of a earthquake is likely higher, its probability is extremely low and cannot be controlled. It is a risk faced rather than chosen. The risk of water shortage is addressed as controllable.

Step 2: Risk Assessment at the Operational Level

When hazards are identified for each major step of an operation, the assessment of risk begins. The severity of each hazard and the probability of loss are calculated or estimated in the most precise way feasible. A Risk Assessment Matrix of severity versus

probability is an excellent comparison tool to arrive at a Risk Assessment Code (RAC) for each risk. Although the degree of risk is subjective, the relative degree of perceived risk associated with a hazard can be identified so risks can be prioritized.[27]

Hazard severity is described as an assessment of the worst credible consequence that can occur as a result of a hazard, defined by the *potential degree of loss or effect on the mission.* Loss probability is based on an assessment of factors such as location, environment, exposure time, affected populations, experience, or statistical data.

The Risk Assessment Code is then assigned based on the following table:-

		Loss Probability			
	RAC	A	B	C	D
Hazard Severity	I - Cata[illegible]phic	1	1	2	3
	II - Seve	1	2	3	4
	III - Minor	2	3	4	5
	IV - Negligible	3	4	5	5

Loss Probability:

A - Likely to occur immediately or frequently.
B - Probably will occur or is expected to several times.
C - May occur or can be reasonably expected to.
D - Unlikely to occur.

RAC Definition:

1 - Critical
2 - Serious
3 - Moderate
4 - Minor
5 - Negligible

Figure 2: Risk Assessment Codes[28]

Hazard severity and loss probability together make up a RAC. A less severe hazard that is more likely to happen may get a higher RAC, representing a perception of greater overall risk. The RACs are used to determine risk reduction priorities.

During planning of major operations, this risk assessment process answers the fourth question of operational art by analytically determining the cost or risk in performing a certain sequence of actions. Previously, there was no formal, standardized way to assess the cost or risk to the mission. Using Risk Assessment Codes provides a structured, consistent

methodology which should be incorporated procedurally to *compare courses of action* in the COA development step of the Commander's Estimate.[29]

The JOPES system should be modified to incorporate software which includes the Risk Assessment Matrix format and databases of statistics and lessons learned which would facilitate constructing accurate matrices for commanders and their staffs. Any previous experiences of other forces facing similar risks and hazards would greatly increase the validity of this step. Maximizing the availability and utility of the JOPES ORM statistical and experiential database facilitates use of the knowledge by personnel employing any level of ORM; it adds relevant analytical data and previous human learning to the toolbox.

Step 3: Acceptability–Making Risk Decisions at the Operational Level

> *In summary, leaders must select the most relevant measures which have the best payoff and integrate them into their planning and preparation. The leadership must then employ those controls with the greatest payoff in risk reduction.*
>
> -- Center for Army Lessons Learned, *Fratricide Risk Assessment for Company Leadership*

Determining the acceptability of different courses of action during the planning process is the crucial point where value is judged and where application of Operational Risk Management is required. Choosing a course of action to follow involves making a risk decision. A hierarchy of risk and cost preference for each COA should be established based on Risk Assessment Codes, such as:

Catastrophe < High Risks < Costs < Low Risks < Negligible Risks

where "<" means "less preferred."[30] The prioritization of risks leads to development of risk control options; the most serious risks that are reducible are selected first and reduced to a minimum consistent with mission accomplishment.

The staff must next determine the cost of bearing risk versus the benefit of mission success probability. The cost of bearing risk includes the cost of loss and the cost of protection against loss. Some subjectivity is involved, such as the value of accepting risk early to prevent greater risk later. The staff uses answers derived from the cost-benefit analysis to place value on each of the various COAs. The results clarify the "why" of risk decisions and COA choice. If the cost--what the commander gives up or stands to lose--outweighs the benefit, or if assistance is required to implement controls, then communicating with higher authority or seeking another solution is warranted.[31]

Acceptability analysis is considered by the Army to be largely an intuitive process based on experience, expertise, and a firm understanding of the current situation.[32] While a feel for what constitutes a hazard or risk may be intuitive, the analysis itself should not be. It must be as rigorous and standardized as possible to minimize subjectivity and preclude oversights by an inexperienced or less-capable staff. After war-gaming and risk analysis, staffs compare COAs to recommend the one with the greatest probability of success.[33] "Prudence, experience, judgment, intuition, and situational awareness of leaders directly involved in the planning and execution of the mission are the critical elements in making [acceptability] risk decisions."[34] The operational commander decides on the COA she will pursue.

Step 4: Implementing Controls at the Operational Level

The measures used to control risk include engineering controls, such as changing design or materials; and administrative controls, such as changing procedures or limiting exposure. The operational commander implements controls by integrating them into the

OPORD, plan, mission rehearsal, or procedures. Detailed communication of procedures ensures the knowledge gets to every level of the forces.

Engineering controls seek to reduce vulnerability (inability to withstand damage or degradation) and susceptibility (inability to avoid damage or degradation) in order to increase survivability (prevention of loss).[35] The invention of Kevlar body armor reduced troop vulnerability to shrapnel wounds. Improved battlefield identification equipment can reduce fratricide by clarifying friendly versus enemy forces;[36] for instance, markers on coalition armored vehicles during Desert Storm and invasion stripes on the wings and fuselages of Allied aircraft in Operation Overlord were designed to prevent fratricide. Night vision goggles reduce risk inherent in night operations on the ground and in the air.

Administrative controls are generally cheaper and quicker ways to avoid or reduce risks by increasing training, providing needed equipment, or writing standard operating procedures (SOP). Organizing and preparing troops for war more efficiently and professionally than the enemy has historically led to an advantage in relative combat effectiveness.[37] Risk reduction through improved battlefield medical procedures has significantly lowered casualty rates.[38] Mission rehearsals allow participants to become familiar with the operation and to visualize the plan.[39] Ordering troops into NBC protective gear prior to battle reduces the risks from the hazards of WMD attack.

Step 5: Supervision and Reassessment of Mission Effectiveness

> *The higher up the chain of command, the greater is the need for boldness to be supported by a reflective mind, so that boldness does not degenerate into purposeless bursts of blind passion. Command becomes progressively less a matter of personal sacrifice and increasingly concerned for the safety of others and for the common purpose.*
>
> --Carl von Clausewitz, *On War*

The operational commander has the duty to supervise the execution of his plan and reassess its mission effectiveness until the operation is complete. Minimizing casualties and losses (maximizing combat survivability), maximizing combat sustainability, and proceeding smartly toward mission objectives and the desired strategic end-state are good measures of effectiveness when reassessing the plan in action. The effect of risk reductions on mission success should be continuously monitored; a plan can hopefully be modified if a previous incorrect risk decision or COA is discovered during execution. Supervision ensures subordinates stick to the plan and don't circumvent procedures. Actions or situations that detract from operational effectiveness or contribute to unnecessary risk should be eliminated.

The Operational Risk Management process is modified and updated with feedback, primarily through "howgozit" situation reports and lessons learned. This information improves data bases for future operations, contributing to better planning by increasing the knowledge and de facto experience level of those involved. Operational commanders have a duty to complete the process by closing the loop with formal feedback to the JOPES system, the Joint (and service) Lessons Learned databases, and other schoolhouses such as the Center for Army Lessons Learned and the Navy's Strike U as appropriate.

V. EXECUTING JOINT OPERATIONS USING TIME-CRITICAL ORM

> *The higher the military rank, the greater is the degree to which activity is governed by the mind, by the intellect, by insight. Consequently boldness, which is a quality of temperament, will tend to be held in check. This explains why it is so rare in the higher ranks, and why it is all the more admirable when found there. Boldness governed by superior intellect is the mark of a hero.*
>
> -- Carl von Clausewitz, *On War*

Battlespace management is the ultimate execution task of the operational commander. Managing operational risk becomes full-dimensional force protection, whose

primary prerequisite is "control of the battlespace to ensure our forces can maintain freedom of action during deployment, maneuver and engagement, while providing multi-layered defenses of our forces and facilities at all levels."[40] New efforts to include time-critical ORM concepts in information and control systems are taking advantage of technology to help us dominate maneuver and protect our forces during combat and non-combat operations.[41] Even then, the commander must weigh the risks of depending on the new tools in the tool box.

Risk Tolerance of the Commander

> *Let me leave you with one thought, guys. In order for this to succeed--because the enemy is still going to outnumber us--it is going to take, for lack of a better word, killer instinct on the part of all of our leaders out there. . . . We need commanders in the lead who absolutely, clearly understand that they* will get thorough. *And that once they're through they're not going to stop and discuss it. They are going to go up there and destroy the Republican Guard. I cannot afford to have commanders who do not understand that it is attack, attack, attack, attack, and destroy every step of the way. If you have somebody who doesn't understand it, I would strongly recommend that you consider removing him from command and putting in somebody that can do the job.* (emphasis in the original)
>
> --General H. Norman Schwarzkopf, *It Doesn't Take a Hero*

The tradeoffs of bold combat initiative versus conservative force protection must be weighed, but the concepts are not mutually exclusive. The risk tolerance of the commander who makes the decision is central to choosing courses of action during time-critical ORM. Bold commanders are often operationally successful because of their willingness to take risks.[42] Current joint doctrine stresses the requirement for a strong moral fibre in today's leaders: "Moral courage involve[s] risk taking and tenacity: making bold decisions in the face of uncertainty, accepting full responsibility for the outcome, and holding to the chosen course despite challenges or difficulties."[43] Effective risk management leads to operational success by preserving forces for concentrated execution of the plan. Wise risk decisions

enable the commander to boldly execute with knowing confidence instead of groundless audacity.

VI. CONCLUSIONS AND RECOMMENDATIONS

Operational risks are increasing in the uncertain global environment where our military operates. The Operational Risk Management process is a tool with which joint commanders can identify operational hazards and risks, assess their impact, make informed risk decisions, implement prioritized risk controls, and boldly supervise execution of operations while reassessing process effectiveness. Increased mission effectiveness of forces will result from wise management of risk across the spectrum of joint operations from peace operations to full-intensity conflict.

Operational commanders and staff planners apply the test of acceptability to joint operation plans. Acceptable plans correctly manage operational risks and costs, minimize the dilution of own and friendly force strength, and conserve combat power. ORM provides the solution to insufficient procedural guidance on determining acceptability in joint doctrinal publications. Deliberate and in-depth risk assessment and risk management lead to intelligent analytical choices when developing courses of action during the joint planning process. Bold commanders use time-critical ORM to make shrewd risk decisions while executing plans in combat and non-combat operations.

A New Role for ORM

Operational Risk Management is a relatively new concept being adopted by the United States military. In April 1996, then-Vice Chief of Naval Operations ADM Jay Johnson testified before Congress about a recent series of F-14 crashes. During an

explanation of fresh steps taken to reduce aviation mishaps, he said, ". . . We've directed that operational risk management be a key factor in the planning and execution of all aviation training and operations."[44]

ORM should not be limited to aviation mishap prevention, nor should it be restricted to any one service. Rather, it must be a universal joint process standardized across service lines and inculcated in the planning and execution of every military operation. Formal integration into doctrine, the JOPES system, and the Commander's Estimate must be directed from the level of the Chairman of the Joint Chiefs of Staff. Specific procedural methods should be incorporated now into every program and document which provides guidance on planning and conducting joint operations. Because of the requirement for every service to comply with joint doctrine, each service must also follow by incorporating that guidance into their own doctrines.

ORM is an analytical process that must become an ingrained, intuitive part of the operational mindset of military commanders at all levels. It is time now to include specific methods of risk assessment and risk management in our doctrine so we can increase the mission effectiveness of our joint and combined forces before we head into the next millennium.

NOTES

[1] Joint Chiefs of Staff, *Joint Vision 2010* (Washington, DC: JCS, 1995), passim.

[2] Department of the Navy, Chief of Naval Operations, Code N511, OPNAV Instruction 3500.XX, *Operational Risk Management* (Draft), cover letter, 1. Undated draft copy faxed from Naval Safety Center on 20 November 1996. Hereafter referred to as OPNAVINST 3500.XX, *Operational Risk Management.*

[3] Answering "the four questions" of Operational Art is used as a planning tool by the Joint Military Operations Department at the Naval War College. They are:

1. What military conditions must be produced in the theater of operations to achieve the strategic goal?
2. What sequence of actions is most likely to produce that condition?
3. How should the resources of the force be applied to accomplish the desired sequence of actions?
4. What is the likely cost or risk in performing that sequence of actions?

Inclusion of question #4 is attributed to General Colin Powell during his tenure as Chairman of the Joint Chiefs of Staff.

[4] Joint Chiefs of Staff, Joint Pub 3-0, *Doctrine for Joint Operations* (Washington, DC: JCS, 1995), III-28, III-29.

[5] Ibid., IV-6, IV-7.

[6] Department of the Navy, Naval Doctrine Command, Naval Doctrine Publication 1, *Naval Warfare* (Washington, DC: GPO, 1994), 55.

[7] The current doctrinal planning guidance deficiency with respect to risks of nuclear, biological, or chemical (NBC) attack is described by Robert G. Joseph, "The Impact of NBC Proliferation on Doctrine and Operations," *Joint Force Quarterly*, August 1996, 78.

[8] Joint Chiefs of Staff, Joint Pub 5-0, *Doctrine for Planning Joint Operations* (Washington, DC: GPO, 1995), I-9, I-10.

[9] Joint Chiefs of Staff, Joint Pub 5-0, *Doctrine for Planning Joint Operations*, I-10 to I-13.

[10] Ibid., I-13, I-14. The test for acceptability is the point where assessment of risks is made in joint operation plans.

[11] Ibid., III-4 to III-11. In deliberate plans, COA development is done in phase 2 of a five phase process. In crisis action plans, it is phase 3 of six phases.

[12] Milan Vego and others, "Commander's Estimate of the Situation (CES)" (Newport, RI: Naval War College, July 1996) provides a version which is reasonably detailed; however, the included test for acceptability is not.

[13] Joint Chiefs of Staff, Joint Pub 3-07, *Joint Doctrine for Military Operations Other Than War* (Washington, DC: GPO, 1995), IV-1.

[14] National Defense University, Armed Forces Staff College, *The Joint Staff Officer's Guide 1993*, AFSC Pub 1 (Washington, DC: GPO, 1993), 6-31, 6-32. The acceptability test given here is basically a restatement of the definition of acceptability from Joint Pub 5-0, *Doctrine for Planning Joint Operations.*

[15] OPNAVINST 3500.XX *Operational Risk Management*, 1-6. This new, draft document provides a succinct shell for many of the concepts of ORM. Much of the basic information in the following section is derived from this source.

[16] *The New Merriam-Webster Dictionary* defines cost as "the loss or penalty incurred in gaining something." For my purposes, cost is something which must be exchanged to gain a benefit such as increased probability of mission success. There are costs of bearing risk, which are described later.

[17] U. S. Army Command and General Staff College, *Command and Staff Decision Processes*, Student Text 101-5, (Fort Leavenworth, KS: U. S. Army Command and General Staff College, 1995), 4-26.

[18] OPNAVINST 3500.XX *Operational Risk Management*, 4-5. I have adapted the process laid out in the instruction for joint operation planning and execution. The salient point: it is a tool for the operational commander to make better decisions. It is modified as needed.

[19] See Giampiero E. G. Beroggi and William A. Wallace, "Operational Risk Management: A New Paradigm for Decision Making," *IEEE Transactions on Systems, Man, and Cybernetics* 24, no. 10 (1994): 1450-1457 for a analysis of risk decisions when contemplating course of action changes in response to unplanned events.

[20] Unfortunately, OPNAVINST 3500.XX *Operational Risk Management* misses the mark on time-critical ORM. It states: "It is the normal level of Operational Risk Management used during the execution phase of training and operations [which is true] *as well as in planning during crisis response scenarios* [which is not true]." On III-13, Joint Pub 5-0, *Doctrine for Planning Joint Operations* specifically states: "The supported commander analyzes the COAs and submits his recommendations to the NCA and the Chairman of the Joint Chiefs of Staff." I have previously shown that the Commander's Estimate is appropriate for COA development during crisis action planning, as shown in Figure III-7 of Joint Pub 5-0.

[21] Adapted from the Department of the Navy, Naval Safety Center, *Draft Reference Guide for Operational Risk Management* (Norfolk, VA: Naval Safety Center, 09 September 1996), Figure 1, downloaded from the Naval Safety Center BBS. I have modified the diagram slightly by changing the word "mishap" to "loss."

[22] OPNAVINST 3500.XX, *Operational Risk Management*, 2.

[23] Nicholas Rescher, *Risk: A Philosophical Introduction to the Theory of Risk Evaluation and Management* (Lanham, MD: University Press of America, 1983), 6.

[24] From Rescher, 16-17: "The cardinal rule is simple: if a risk analysis is to provide adequate guidance for rational choice, it must not lose sight of any choice-relevant considerations. For an adequate treatment of risks, all of the alternatives that can influence our deliberations must be taken into account, both as regards the available choices and as regards the possible outcomes."

[25] A larger list can be found in U. S. Army Command and General Staff College, *Command and Staff Decision Processes*, 4-29.

[26] Ibid., 4-27.

[27] OPNAVINST 3500.XX *Operational Risk Management*, 6. There is a good description of the categories of hazard severity, loss probability, and RAC definitions. The Naval Safety Center has been using Risk Assessment Matrices in Aviation Mishap Investigation Reports for several years.

[28] Ibid., 7-8.

[29] See U. S. Army Command and General Staff College, *Command and Staff Decision Processes*, 4-28 for a slightly different Risk Assessment Matrix. It adds a fifth probability category of "remotely possible." Aside from explaining the matrix itself, the step-by-step guidance in this text for the overall risk assessment/management process is thin. The risk decision step, arguably the most crucial, is underrepresented with this single sentence: "Reduce risk to that which is mission essential." That guidance, while good advice, is insufficient for such a critical step.

See U. S. Army Combined Arms Command, Center for Army Lessons Learned, *Fratricide Risk Assessment for Company Leadership* (Washington, DC: GPO, March 1992), no. 92-3 for better specific guidance provided by the Army to its company commanders in the field. This pocket handbook gives a specific list of primary contributing factors which lead to listed primary causes of fratricide. A risk assessment submatrix for each cause is provided, with weighted values of risk assigned to contributing factors. With this guide, the company commander is able to assess risk in the field without having to brainstorm risk at the time. Instead, it is an easier task to refer to the relevant submatrices and choose a course of action based on derived risk levels.

[30] Giampiero E. G. Beroggi and William A. Wallace, "Operational Risk Management: A New Paradigm for Decision Making," *IEEE Transactions on Systems, Man, and Cybernetics* 24, no. 10 (1994), 1452.

[31] OPNAVINST 3500.XX *Operational Risk Management*, 2. Here risk is weighed against benefit. The concept of cost, something to exchange for a reduction of risk, is more helpful. To take the previous example of reducing the risk of dehydration due to the possible hazard of insufficient water for a mechanized corps, the cost may be increased logistics effort, diversion of personnel or resources, or reduced surpluses for other forces.

[32] U. S. Army Command and General Staff College, *Command and Staff Decision Processes*, 3-2. The text is more specific in wording step #1 of the process: "The staff reviews and expands, as appropriate, the list of hazards and major events . . . and, if necessary, displays them in a decision tree. This procedure helps detect specific hazards associated with all specified and implied tasks. . ."

[33] U. S. Army Command and General Staff College, *Command and Staff Decision Processes*, 4-1. Although listed in its table of contents as an aid to *tactical* vice operational decision making, the text is correct in using the risk assessment/risk management tool as a primary means of COA comparison.

[34] OPNAVINST 3500.XX, *Operational Risk Management*, 6.

[35] See Robert E. Ball, *The Fundamentals of Aircraft Combat Survivability Analysis and Design*, AIAA Education Series, ed. J. S. Przemieniecki (New York: American Institute of Aeronautics and Astronautics, Inc., 1985) for excellent discussions of those three concepts in the design of combat aircraft to avoid and withstand threat damage.

[36] U. S. Army Combined Arms Command, Center for Army Lessons Learned, *Fratricide Risk Assessment for Company Leadership*, 14.

[37] Trevor N. Dupuy and others, *Handbook on Ground Forces Attrition in Modern Warfare* (Alexandria, VA:DTIC, 1986), AD-A278-728, 63-65 and 167. In both world wars, German soldiers had a Combat Effectiveness Value (CEV) of 1.2, where 100 German soldiers were as combat effective as 120 American soldiers. The Israelis typically had a 2.0 CEV over their Arab adversaries. The force with superior relative combat effectiveness generally has lower casualty rates than the inferior forces--and wins. Materiel loss rates are related to personnel casualty rates.

[38] Ibid., 84.

[39] Joint Chiefs of Staff, Joint Pub 3-0, *Doctrine for Joint Operations*, III-29.

[40] Joint Chiefs of Staff, *Joint Vision 2010*, 22.

[41] Yasushi Ikeda, Giampiero E. G. Beroggi, and William A. Wallace, "Real-Time Air-Raiding Command (RARC): An Application of Operational Risk Management," *Simulation Series* 27, no. 4 (1995) discusses a new computer simulation model that uses decision logic to assist an inflight aircraft commander to make real-time risk decisions while raiding a target. This is a new technology that fits in with Admiral Owens' "system of systems."

[42] Major Richard C. Halbeib, USA, *No Guts No Glory--Operational Risk Taking: Gaining and Maintaining the Tempo* (Fort Leavenworth, KS: U. S. Army Command and General Staff College, 1990), Abstract.

[43] Joint Chiefs of Staff, Joint Pub 1, *Joint Warfare of the Armed Forces of the United States of America* (Washington, DC: GPO, 1995), vii.

[44] Congress, House, National Security Committee, Military Procurement Subcommittee, *F-14 and AV-8B Aircraft Mishaps and Safety Record*, 16 April 1996. Accessed from Federal Information Systems Corporation, *Federal News Service*, loaded 17 April 1996.

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