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14. ABSTRACT

Uncertainty and risk are inherent in the nature of military action. The success of any joint military operation is based upon a willingness to balance risk with opportunity in taking bold, decisive action necessary to triumph in war. At the same time, commanders have a fundamental responsibility to safeguard personnel and material resources, and to accept the level of controlled risk necessary to accomplish the assigned mission.

Operational Risk Management (ORM) is the process that assists the military commander in reducing or offsetting risk and helps him think through his options when faced with force employment and the requirement for risk control for mission success. By systematically identifying, assessing, and controlling risk arising from operational factors, the commander can evaluate all the elements that affect the employment of forces and assets. While ORM terminology is discussed in joint operational doctrine and planning publications, there exists no clear application and integration in developing the Commander's Estimate of the Situation (CES) through the Course of Action (COA) process. This paper will illustrate how ORM fits into the existing Joint Operation Planning and Execution System (JOPES) process to assist leadership in identifying the optimum COA for mission success. Included in the ORM application is a quantifiable evaluation process that prioritizes the threat, vulnerability, and criticality for joint commanders to apply limited resources to enhance operational capability. No longer will the Commander Joint Task Force (CJTF) have to rely exclusively on his intuition and experience in calculating the increased levels of risk he can accept for mission success. This paper will recommend changes to Joint Publication 3-0 Doctrine for Joint

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Risk-Based Decision-Making and the Use of Operational Risk Management (ORM) in Developing a Course of Action (COA) for the Joint Task Force (JTF)

By

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A proposal 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 proposal 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

Uncertainty and risk are inherent in the nature of military action. The success of any joint military operation is based upon a willingness to balance risk with opportunity in taking bold, decisive action necessary to triumph in war. At the same time, commanders have a fundamental responsibility to safeguard personnel and material resources, and to accept the level of controlled risk necessary to accomplish the assigned mission.

Operational Risk Management (ORM) is the process that assists the military commander in reducing or offsetting risk and helps him think through his options when faced with force employment and the requirement for risk control for mission success. By systematically identifying, assessing, and controlling risk arising from operational factors, the commander can evaluate all the elements that affect the employment of forces and assets. While ORM terminology is discussed in joint operational doctrine and planning publications, there exists no clear application and integration in developing the Commander's Estimate of the Situation (CES) through the Course of Action (COA) process. This paper will illustrate how ORM fits into the existing Joint Operation Planning and Execution System (JOPES) process to assist leadership in identifying the optimum COA for mission success. Included in the ORM application is a quantifiable evaluation process that prioritizes the threat, vulnerability, and criticality for joint commanders to apply limited resources to enhance operational capability. No longer will the Commander Joint Task Force (CJTF) have to rely exclusively on his intuition and experience in calculating the increased levels of risk he can accept for mission success. This paper will recommend changes to Joint Publication 3-0 Doctrine for Joint Operations to assist the commander in evaluating and ultimately accepting greater levels of controlled risk in order to triumph in combat.

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Introduction to Operational Risk Management in the Joint Task Force (JTF) Environment

Uncertainty and risk are inherent in the nature of military action. The success of the Joint Task Force (JTF) is based upon a willingness to balance risk with opportunity in taking the bold and decisive action necessary to triumph in battle. At the same time, commanders have a fundamental responsibility to safeguard highly valued personnel and material resources and to accept only the minimal level of risk necessary to accomplish the assigned mission.[1]

Since the Korean conflict, United States forces have suffered more losses from non-combat causes than from enemy action. Key factors contributing to these losses include:

(1) Rapidly changing operational environment
(2) Fast-paced, high operations tempo, and high personnel tempo.
(3) Equipment failure, support failure, and effects of the physical environment.
(4) Human factors.[2]

Operational Risk Management (ORM) is the process used by senior leadership and decision-makers to offset or reduce risk. Military operations, especially combat operations, are demanding, complex and extremely dangerous. Managing risk associated with such operations requires educated judgment and professional competence. The ORM process allows the Commander Joint Task Force (CJTF) to make informed conscious decisions to keep risks at acceptable levels. The process of ORM is not designed to eliminate risk, which is all but impossible in combat, but rather to control it and capitalize on the opportunities presented. President Bush states, "I am committed to fostering a military culture where visionary leaders who pursue intelligent risk-taking and forward thinking are recognized and promoted."[3] Risk management should be applied to all levels of war and across the full range of military operations. Concurrently, ORM should be applied to all phases of an operation and should include any branches and sequels to that operation.[4]

This paper will illustrate that the CJTF does not have to depend exclusively on his intuition and experience in calculating the increased levels of risk he can accept for mission success. He will now be able to capitalize on the benefits of a risk-based, decision-making process called ORM. It will also argue that ORM must be incorporated into the Joint Operation Planning and Execution System (JOPES) and the Commander's Estimate of the Situation (CES) to optimize prioritization of limited resources for enhanced operational capability. Additionally it will recommend changes to JP 3-0, Doctrine for Joint Operations and will assist the CJTF and his staff in formulating Courses of Action (COA) within the existing planning process.

The ORM process is not a radically new way of conducting business in the joint planning environment. The U.S. military has been applying ORM processes and philosophies informally for years. However, the initial use of ORM was almost exclusively compartmentalized into safety programs designed to prevent human factors mishaps. The application of ORM to war fighting capabilities and operational art is part of a cultural change that must precede its integration into the joint doctrinal mindset. No longer is it equated to only one aspect of force protection—safety. Although safety responsibilities interface with other elements of protection they are often viewed as external to the mission.[5] This misguided association of ORM with safety programs gave it a low priority as a war-fighting tool for the CJTF. A by-product of the fragmented use of ORM at the operational level of warfare[6] has been the lack of flexibility among some in senior staff positions who are protective of "the way things are done around here" and resist change. Change, as a function of the process of reorganization now being implemented in the Department of Defense (DOD), is inevitable and the mindset of "a change imposed is a change opposed" must be mitigated. Change during planning and on the battlefield is part of the unpredictability and friction of war. How the combatant commander and his

subordinate commanders incorporate and react to change can be the difference between success and failure. Certain realities of change must be incorporated into the mindset of commanders to deal with it effectively, so as to capitalize on timely counter-measures necessary to maintain battlespace dominance.

- **Change happens** in all military operations.
- **Anticipate change** to occur normally at the most inappropriate time. During "Operation Iraqi Freedom" in April 2003, a significant inflow of coalition forces to the battlespace planned was to ingress through Turkey. Due to internal political dissonance, permission was denied to U.S. forces at the last minute, and significantly more difficult and expensive branch plans were executed.
- **Monitor change.** Be prepared to modify or abandon COAs as leadership detects early signs of operational deterioration.
- **Adapt to change quickly.** The sooner the Joint Force Commander (JFC) abandons a deficient Course of Action to counter the threat, the sooner he will be able to maximize his operational opportunity.
- **Change.** Implement change force-wide as quickly as possible once the commander has selected his new COA.[7]

As it became apparent to field commanders, the use of ORM produced statistically significant results in the lowering of combat and non-combat mishaps, it was time to incorporate ORM at the operational/strategic levels of war. As was the original intent, it became obvious to senior leadership that:

> Risk management is not an add-on feature to the decision making process but rather a fully integrated element of planning and executing operations.… Risk management helps us preserve combat power and retain the flexibility for bold decisive action. Proper risk management is a combat multiplier that we can ill afford to squander.[8]

Historically, the Army has had more accidental losses including fratricide than losses from enemy action. In Desert Shield and Desert Storm, 75 percent of the casualties were due to accidents with 5 percent due to friendly fire and only 20 percent due to combat enemy action.[9] The Vietnam Memorial in Washington, D.C. has 58,000 names inscribed of those men and women who died in the combat zone during the conflict. Over 10,000 of those service members did not die from enemy action, but rather from mishaps and fratricide.

ORM Process Integration For Joint Force Commanders

Commanders must realize that risk is related to gain–the greater the risk, the greater the potential gain. Our military heritage is built upon the cornerstone of seizing the initiative and taking decisive action. The JFC must never confuse controlled risk-taking with **"**a gamble.**"** Field Marshal Erwin Rommel defined risk as, "a chance you take; if it fails, you can recover. A gamble is a chance taken; if it fails, recovery is impossible."[10]

The risk management process involves logical, sequential identification of threats to both individual forces and mission accomplishment. The application of ORM is continuous throughout the joint planning process, providing risk acceptance guidelines for the exercise of authority of the combatant commander and his joint force commanders. Figure 1 (Continuous Application of Risk Management) shows the flow of the ORM process to be used during Joint Operation Planning.[11]

At the operational level of planning and execution of major evolutions, a key component of success is communicating unacceptable levels of risk up through the chain of command. This risk-based situational awareness posture should lead commanders to consider incorporating operational pauses for maintaining tactical advantages and not overextending operational reach.

By the understanding that an accumulation of low to medium risk can add up to substantial shortfalls in control of the environment, commanders can preempt a hazardous situation by applying risk controls to maintain full application of the principles of war and continue to dominate the battlespace.

The Process

The ORM process assists decision-makers in reducing or offsetting risk. It identifies the goal, key aspects, and principal concepts of controlling hazards to conserve combat power and resources. The steps of ORM are:

- **Identification of threats to both individual forces and mission success**. Threats are sources of danger. Any opposing force condition, source, or circumstance with the potential to impact mission accomplishment or capability must be considered a threat. Experience, common sense and ORM tools help identify real or potential threats. Threat recognition is the foundation for the entire ORM process. If a threat cannot be identified, it cannot be controlled.[12]
- **Assessing the threats based upon the combined quantification of severity and probability of loss or failure**. A matrix has been designed to assess the threats to mission success and force protection. Using risk-based metrics to quantify and prioritize the hazards does not lessen the inherently subjective nature of risk assessment. However, the development of quantitative assessments does provide a consistent framework for evaluating risk. A key factor in this assessment is the aspect of exposure, which is the number of personnel or resources affected by a given event or over time by repeated events.[13] (See Tables IV and V)
- **Developing controls and making risk decisions to mitigate risk to acceptable levels while increasing success rate.** After assessing each threat, planners and commanders should develop one or more controls that either eliminate the threat or reduce the risk to an acceptable level. As the risk control decision is made, assets must be made available to the selected control to lower risk.

- **Supervising and reviewing.** CJTFs must continuously monitor the operation to insure that controls are implemented correctly, effectively, and remain in place; they must insure action is taken to correct ineffective risk controls, always being prepared to reinitiate the ORM process in response to new threats. After controls have been applied, a review must be accomplished to see if the risks and the mission are in balance.[14] Applying the ORM process sequentially is important because each component builds on the previous steps. A typical mistake in applying the ORM process to JTF planning is interrupting the threat identification phase to begin prematurely applying controls against a particular risk that planners believe is important. This disruption of the cycle may allow important threats to be overlooked, and the ORM process becomes unbalanced to the point where prioritization of resources is misguided. The ORM process has its roots in the military decision-making process, as seen in Table 1 (Risk Management Steps).[15]

More importantly than the process of ORM is the application of the key principles that apply the framework to operational planning and execution.

- **Accept no unnecessary risk.** An unnecessary risk is any risk that, if taken, will not contribute meaningfully to mission accomplishment or will needlessly endanger lives and resources.[16] No commander intentionally accepts unnecessary risks; however, "what you don't know, you don't know," and therefore, without a systematic risk analysis process during the planning phase to determine a COA, the commander may be accepting a risk that he is unaware exists.
- **Make risk decisions at the appropriate level.** Anyone can make a risk decision; however, the most mission supportive decisions come from the commander who has the resources and authority to eliminate or minimize the threat, reduce the risk to an acceptable level, or simply accept the risk.
- **Accept risk when benefit outweighs the cost.** The process of weighing risk against opportunities and benefits helps to maximize mission success. Balancing costs and benefits is a subjective process and must remain a leader's decision.[17]

- **Anticipate and manage risk by planning.** Success in joint operations begins prior to battle, during the planning stage when terms and conditions for combat are set. ORM functions within this context, for it is an intuitive process interwoven throughout the warrior art of decision-making and not a separate parallel function.[18]

Purpose for Embedding ORM into Joint Planning

> And for this reason, the wise general in his deliberations must consider both favourable and unfavourable factors. [Ts'ao Ts'ao] He ponders the dangers inherent in the advantages, and the advantages inherent in the danger. By taking into account the favourable factors, he makes his plan feasible, by taking into account the unfavourable factors, he may resolve the difficulties.[19]

Every day, as we respond to the nation's needs, we expose our people to hazards in uncertain and complex environments. We do this with the full knowledge that there are inherent risks associated with military operations. The nature of our profession will not allow for either complacency or a cavalier acceptance of risk.[20]

Joint warfare is essential to our nation's capability to fight and win. The nature of modern warfare demands we plan and fight as a team. The combatant commander's strategic planning in peacetime provides the framework for employing forces in response to crisis.[21] The strategic estimate is a tool available to combatant commanders and subordinate JFCs as they develop campaign plans and subordinate campaign and operational plans. In the strategic estimate, commanders focus on the threat and consider other circumstances affecting the military situation as they develop and analyze their COAs. One of those circumstances considered is the assessment of strategic alternatives available with accompanying analysis, risks and the requirements for plans.[22] For joint forces to succeed in battle, they must have a single, unified planning and execution framework for translating individual service terminology into a common understood language and standard operating procedures.[23] The baseline of this joint framework is the Joint Operation Planning and Execution System (JOPES). JOPES furnishes joint

commanders and war planners at all levels with standardized policies, procedures, and formats to produce and execute a variety of required tasks.[24] JOPES' procedures provide multiple levels of decision-making and risk analysis in two forms of joint operational planning. Deliberate planning evolves operational plans through COA development for contingency operations identified in joint strategic planning documents.[25] Crisis Action Planning (CAP) is a time-sensitive, JOPES process to develop joint operational plans and orders in response to an unfolding, time-sensitive crisis. All joint operational plans must conform to the criteria of adequacy, feasibility, acceptability, and compliance with joint documents. Adequacy establishes that the plan satisfies the tasking and will accomplish the mission. Feasibility insures tasks can be accomplished with available resources within the time frame conceived. Acceptability checks that the plans are proportional and worth the anticipated cost without incurring excessive losses of personnel, equipment, material, time or position.[26]

Correspondingly, a good risk management approach to planning includes the essential elements of threat, vulnerability, and a criticality assessment, used in synchronization with the mission statement and commander's intent. The threat assessment identifies and evaluates threats based on multiple factors, including hostile capability and intentions as well as the potential lethality of enemy attack. A vulnerability assessment is a process that identifies weaknesses that may be exploited by the enemy and suggests options to eliminate or control those weaknesses. The criticality assessment is a process designed to systematically identify those assets in an operation that are vital to the mission or function. Criticality assessments are important because they provide the basis for prioritization of those assets that require a higher level of protection from attack.[27]

There is a remarkable similarity between the Deliberate Planning process, Crisis Action Planning process and the Operational Risk Management process (See Table VI). In Phase 1 of CAP (Situation Development), hazards associated with the fundamental assumption of national security interests determine if military action is necessary. In the parallel ORM process, the planner identifies the hazards associated with an operation or a threat to his forces or, more importantly, what will prevent him from accomplishing his mission quickly and decisively.

In concert with ORM, the generic military analysis model of METT-T should be used for conducting a situational awareness process that aids the JTF planner in understanding both friendly and hostile environments. The analysis is broken down into the general areas: (1) the Mission itself, (2) the Enemy, (3) Terrain/weather, (4) Troops and support available, and (5) **Time** available.[28] The factors of METT-T provide a second framework for identifying hazards, determining risks and implementing controls when planning, preparing, and executing operations. When applying the ORM process using a framework of METT-T as a basis during mission analysis, commanders and staffs should look for hazards that affect tactical, operational, and accident risks. They must identify all hazards that may present significant threats to the mission.[29] By continuing a comprehensive integration of ORM and METT-T analysis in Phase 2 (Crisis Assessment) of CAP planning, a substantial number of critical hazards can be identified. These hazards are associated with operational factors, critical factors, operational functions and principles of war. Once identified, the hazards are assessed using the ORM process, in terms of severity and probability, where the risk of any event can be more usefully thought of as the product of: (1) the probability of that event occurring, and (2) the costs associated with the event occurring.[30] The resultant numerical quantity can be considered a Risk Assessment Index (RAI) that the commander and planner can use to prioritize the criticality of the risk, and it can be the

basis of a "totem pole" prioritization for allocation of resources to the risks that will most affect the successful outcome of the operation. (See Table IV.)

In Phase 3 (Course of Action Development), the COA is any concept of operation open to a commander that if adopted, would result in accomplishment of the mission. It is the product of the CES process and will include the concept of operations, evaluation of supportability, and integrated time-phased force deployment database for operations. When approved, the COA becomes the basis for development of an Operational Plan (OPLAN) or Operational Order (OPORD).[31] The corresponding phase of ORM that applies is Hazard Assessment, with the continued use of the product of severity and probability. During COA development, we are determining the direct impact of each threat on the operation.[32] Planners can now begin preliminary incorporation of risk controls into the COA's testing for feasibility, acceptability and adequacy.

In Phase 4 (COA Selection), the President and Secretary of Defense (formerly called the National Command Authority or NCA) decide on a course of action.[33] In this phase, COAs are war-gamed against the Enemy's most likely and most dangerous Courses of Action (ECOAs) comparing the benefits and costs of each COA against opposing ECOAs.[34] COAs are continuously analyzed to mitigate risk until the operational level of risk is acceptable to the combatant commander. Determining the risk in a COA is more art than science. Historical data, intuitive analysis and judgment are employed to estimate the risk of each threat.[35] The level of risk in certain sections of the COA may still be extremely high, but balancing this level with the potential benefits to be gained can make it acceptable to the commander.

In Phase 5 (Execution Planning), the Joint Force Combatant Commander develops a campaign plan or Operational Order (OPORD) and Time-Phased Force and Deployment Data

(TPFDD). The ORM application makes risk decisions and incorporates risk controls into the OPORD or OPLAN in determining if there is any residual risk that needs resource allocation to raise the comfort level of the commander in what he is willing to accept.

In the final phase of the CAP (Execution), the President and Secretary of Defense authorize the Combatant Commander to execute the OPORD or campaign plan. The staff then implements execution, paying close attention to the areas with the highest residual risk, implementing additional controls (if necessary) and supervising execution through the final step in the ORM process. (See Tables II and III).[36] Within this context of the operational art of execution, the principal role of the commander and staff is to soundly sequence and synchronize, or simply stated, to "orchestrate" the employment of military forces and non-military sources of power to accomplish the strategic and operational objectives in a given theater.[37] Without synchronizing all sources of power, both military and non-military, it is difficult, if not impossible, to employ forces quickly and decisively in space, time, and purpose to achieve victory with minimum losses in personnel and material.[38]

Joint Pub. 3-0, Doctrine for Joint Operations, directs Joint Force Commanders to concern themselves with risk reduction during planning, preparation and conduct of combat operations. Unfortunately, the guidance on managing risk during the execution of operations is a "broad brush" approach—discussing issues as joint force morale, risk of failure to national prestige, loss of expensive equipment, and damage to the environment.[39] By integrating the risk management process into each phase of the deliberate and crisis action processes of the JOPES, the Joint Task Force (JTF) and Major Subordinate Element (MSE) identify the level of command authority responsible for risk management execution during each particular phase of planning process.

Thus, the ORM process should be considered throughout each step of the planning by each level of command.[40] (See Tables II and III)

The fundamental purpose of the armed forces of the United States is to win our nation's wars—quickly and decisively. The balancing of bold execution and decisive action in combat versus the conservative measures required of force protection are not mutually exclusive. The risk tolerance of the commander who makes these decisions is key in choosing effective courses of action that are mission supportive.

Current joint doctrine stresses the requirement for moral courage involving, "competent risk-taking and tenacity and includes the willingness to stand up for what one believes to be right, accepting full responsibility for the outcome."[41]

Secretary of Defense, Donald Rumsfeld states, "When the U.S. commits forces, the task should be achievable, at acceptable risk."[42]

Conclusions and Recommendations

Operational risks are increasing at an exponential rate as the United States military faces global asymmetric threats and more sophisticated adversaries. While there have been some recent improvements in the incorporation of ORM into the joint publications, the overall direction has been one of simply using selected ORM terminology to substitute for full doctrinal integration and implementation. It has become a superficial effort by some commanders to answer the essential operational question, "What is the likely cost or risk in performing the sequence of actions necessary to produce the military condition that will achieve the strategic goals in the theater?"[43] The ORM process is a tool with which the CJTF can identify operational risk, assess its impact, implement prioritized risk controls, permitting the commander boldly to accept greater levels of risk to enhance operational success. The ORM process aids the commander, enabling him to make informed decisions about risk based on a quantifiable, analytical assessment of risk in relation to mission objective. No longer will the commander have to rely exclusively on his institutionalized intuition and/or experience in calculating the increased levels of risk he will have to overcome to achieve mission success. Increased mission effectiveness will result from an educated management of risk that spans the spectrum of joint operational planning from initial planning through mission execution. While mission success is always the foremost concern, it has been a well established fact that change is the "mother" of all risk and the reluctance to understand and react in a timely manner to the ever-changing battlespace can be catastrophic. And, ORM is the tool that will add some precision and sound logic to that responsibility.

Combatant commanders and staff planners apply the test of acceptability to joint operation plans in a continuing cycle. 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 in determining acceptability in joint doctrinal publications. Deliberate and in-depth risk assessment in risk management lead to intelligent, well-balanced, analytical choices when developing COAs. During the joint planning process, bold commanders should use a time critical ORM process to make shrewd risk decisions while executing plans in combat and in non-combat operations.

As a consequence, current joint doctrine needs to be modified to codify the use of the ORM tool in the joint operational planning process. Specifically, recommended changes to the current JP 3-0, Doctrine for Joint Operations are listed (in bold) with chapter and page number in Attachment 1.

The User's Guide for JOPES (May 1995), should be updated to address how the principles and processes of ORM apply to both deliberate planning and crisis action planning. The Joint Doctrine Encyclopedia (16 July 1997) needs to also be updated to include standardized ORM terminology and a definition of the process. An additional recommendation is that staff planners be directed to use the ORM Probability and Severity Quantification Matrix (see Table IV) to capture and prioritize all risks that are uncovered during the planning process. Balancing such risks against the METT-T analysis model will assist in applying resources to mitigate the most hazardous risks in the COA.

In closing, Operational Risk Management assists the commander in:

- Conserving lives and resources while avoiding unnecessary risk
- Making an informed decision to implement a COA
- Identifying feasible and effective control measures where specific standards do not exist
- Providing reasonable alternatives for mission accomplishment

However, ORM does not:

- Inhibit the commander’s flexibility and initiative
- Remove risk altogether, or support a zero defects mindset
- Require a go/no go decision
- Sanction or justify violating the law
- Remove the necessity for standard drills, tactics, techniques, and procedures

Until the principles of risk-based decision-making are thoroughly integrated into joint force planning and execution, United States' and coalition forces are at risk for mission degradation and human factors failures leading to mishaps and fratricide.

Recommendation Attachment 1

Chapter-Page	Paragraph
III-3	● Strategic Estimate – "JFCs as they develop campaign plans and subordinate campaign operation plans." **The Strategic Estimate should particularly focus on threats and hazards based on the CINC's risk guidance. Historically, a majority of U.S. casualties come from non-battle related mishaps.**
III-3	● "In the Strategic Estimate, commanders focus on the threat and consider other circumstances affecting the military situation as they develop and analyze courses of action." **Circumstances affecting potential hazards and threats to be considered in risk management controlled decisions must be identified early. Potential strategic hazards and threats in deploying a force to the theater must be considered.**
Figure III-1 on page 3-1	● Strategic Estimate – "Assessment of the threats to accomplishment of assigned objectives," **utilizing the operational risk management process.**
III-4	● "Identification of potential military requirements across the range of military operations," **to include hazards, threats, risks and controls.**
III-9	● Subordinate Campaign Plans – "contribute to achieving combatant command objectives," **and risk guidance. Risk guidance is the combatant commander's intent and direction for hazards, threats, risks and controls. He may establish decision authority and priority of resources to implement controls. He should identify acceptable risks based upon the urgency of the situation.**
III-27	● "In the concept of operations, the JFCs describe the overall objectives **and risk guidance** of Joint Forces, the mission assigned…"
III-28	● "In terms of percentage of total available resources," **resources necessary to implement hazard controls should be considered.**
III-36	● "…or they may decide the risk is acceptable." **If unable to reduce or eliminate risks, commanders should elevate their concerns to the appropriate decision level to effect controls or modify plans.**
III-36	● **Operating to establish standards is the most effective method in reducing loss due to accidents. Forces must be trained and accountable to operate to established standards.**

Chapter-Page	Paragraph
IV-3	● "Climatological and hydrographic studies and long range forecasts help the JFCs understand the most advantageous time and location for operations." **The physical environment may also increase hazards and significantly increase risks to friendly forces and mission success.**
IV-5	● "Protection of Forces – Potential or Likely Threats" **and Hazards.**
IV-5	● Last paragraph. **Interoperability is critical to reducing risks associated with Joint Operations. Inconsistencies in procedures and communications equipment incompatible with other services will greatly increase risk of mission degradation.**
IV-7	● "Prevention of Fratricide – Institute Appropriate Preventive Measures." **Within the joint arena, standardized communications procedures, equipment operability, and weapons systems employment must be addressed.**
IV-12	● Protection – "Protection measures that apply to Joint Operations are appropriate also for multi-national situations." **The risk management process is equally important from planning to execution through termination and recovery.**
B-1	● Mission Analysis – "Frame as a clear, concise statement of the essential tasks to be accomplished and the purpose to be achieved." **Include risk guidance as established by the combatant commander.**
B-2	● Deductions – "…including enemy capabilities that can effect mission accomplishment." **Threats and hazard identification begins during mission analysis and continues through Course of Action analysis and development. Assessment of hazards begins with mission receipt and continues through Course of Action comparison. Controls for hazards are developed as the Course of Actions are developed and compared. Supervision and evaluation of controls for hazards and risk levels continues through mission execution.**

Notes

[1] Navy Department, Operational Risk Management, OPNAVINST 3500.39A, (Washington: September 26, 2000). The author of this paper was the Director of Operational Risk Management from 1998 to 2002. He also co-authored two bibliographical references: (1) Navy Department, Operational Risk Management, OPNAVINST 3500.39A (Washington, D.C.: September 26, 2000) and (2) Department of the Navy, Navy Warfare Development Command. Multi-Service Tactics, Techniques and Procedures for Risk Management, NTTP 5-03.5 (Newport, R.I.: February 15, 2001).

[2] Department of the Navy. Navy Warfare Development Command, Multi-Service Tactics, Techniques and Procedures for Risk Management. NTTP 5-03.5 Newport, R.I.: February 15, 2001. I-1.

[3] Speech of President George W. Bush. US Naval Academy Commencement Exercise. May 2001, Annapolis, MD.

[4] Joint Chiefs of Staff, Doctrine for Joint Operations, Joint Pub 3-0, Washington, DC: JCS, 10 September 2001, III-35-36.

[5] Carol Van Aalten, "Risk Management: A Coming of Age Discipline," A Common Perspective, March 1997, 28.

[6] The operational level of war is that level at which military and non-military sources of power are employed to accomplish military strategic or theater strategic objectives through the planning, preparation, and execution of a single campaign; sometimes the same objective could be accomplished by conducting a major joint or combined operation; this level of war is conducted in a given theater of operations. Milan, N. Vego, Operational Warfare (Naval War College textbook, NWC 1004, 2000), 642.

[7] Spencer Johnson. Who Moved My Cheese? (New York: GP Putnam Sons, 1998), 74.

[8] Dennis J. Reimer, Risk Management (SM 100-14) (Washington, D.C.: April 1998), iii.

[9] Department of the Army, Risk Management (FM 100-14). (Washington, D.C.: April 1998), 1-2.

[10] Department of the Army, Operations (FM 100-5). (Washington, D.C.: 1993), 2-2.

[11] NTTP 5-03.5, I-4.

[12] Ibid., II-1.

[13] Department of the Air Force. Operational Risk Management (ORM) Guidelines, AFP 91-215. (Washington, D.C.: June 1, 1998), 18.

[14] NTTP 5-03.5, II 5-6.

[15] FM 100-14. 2-1.

[16] Ibid., 1-2.

[17] Ibid.

[18] Van Aalten, 28.

[19] Sun Tzu, The Art of War, Translated by Samuel B. Griffith (New York: Oxford University Press, 1971), 113.

[20] Reimer, 3-1.

[21] Joint Pub. 3-0, III-1.

[22] Ibid., III-2, III-3.

[23] Joint Chiefs of Staff. User's Guide for JOPES (Joint Operation Planning and Execution System (Washington, D.C.: May 1, 1995), i.

[24] Ibid.

[25] I will not analyze in depth the deliberate planning process because it is an extensive subject that falls outside the scope and text of this paper.

[26] Joint Chiefs of Staff, Doctrine for Planning Joint Operations. Joint Pub. 5-0 Washington, D.C.: JCS, 13 April 1995, I-13-14.

[27] Congress, Senate, Committee on Governmental Affairs, Homeland Security, Key Elements of a Risk Management Approach: Hearing Before the Subcommittee on National Security, 107th Cong., 1st sess, 12 October 2001, 1.

[28] NTTP 5-03.5, II-8.

[29] Department of the Army, Risk Management (FM 100-14) (Washington, D.C.: April 1998) 2-3.

[30] Gardner P. Howe, "Risk in Military Operations," (Unpublished research paper, U.S. Naval Postgraduate School, Monterey, CA: December 1995), 5-11.

[31] National Defense University, Joint Forces Staff College. The Joint Staff Officer's Guide (JFSC Pub. 1) Norfolk, VA: 2000, G-28.

[32] NTTP 5-03.5, 1-3.

[33] JOPES, 9.

[34] Ibid.

[35] U.S. Naval War College, "Commander's Estimate of the Situation (CES)" (NWC 4111F) (Newport, R.I.: August 19, 2002), D-1.

[36] NTTP 5-03.5.

[37] Vego, 1.

[38] Ibid. 545.

[39] Joint Pub. 3-0, III-36.

[40] NTTP 5-03.5, II-7, II-8.

[41] Joint Chiefs of Staff. Joint Warfare of the Armed Forces of the United States. Joint Pub. 1, November 14, 2000, viii.

[42] Department of Defense Press Conference, Pentagon, Washington, D.C. April 9, 2003.

[43] Joint Pub. 3-0, II-3

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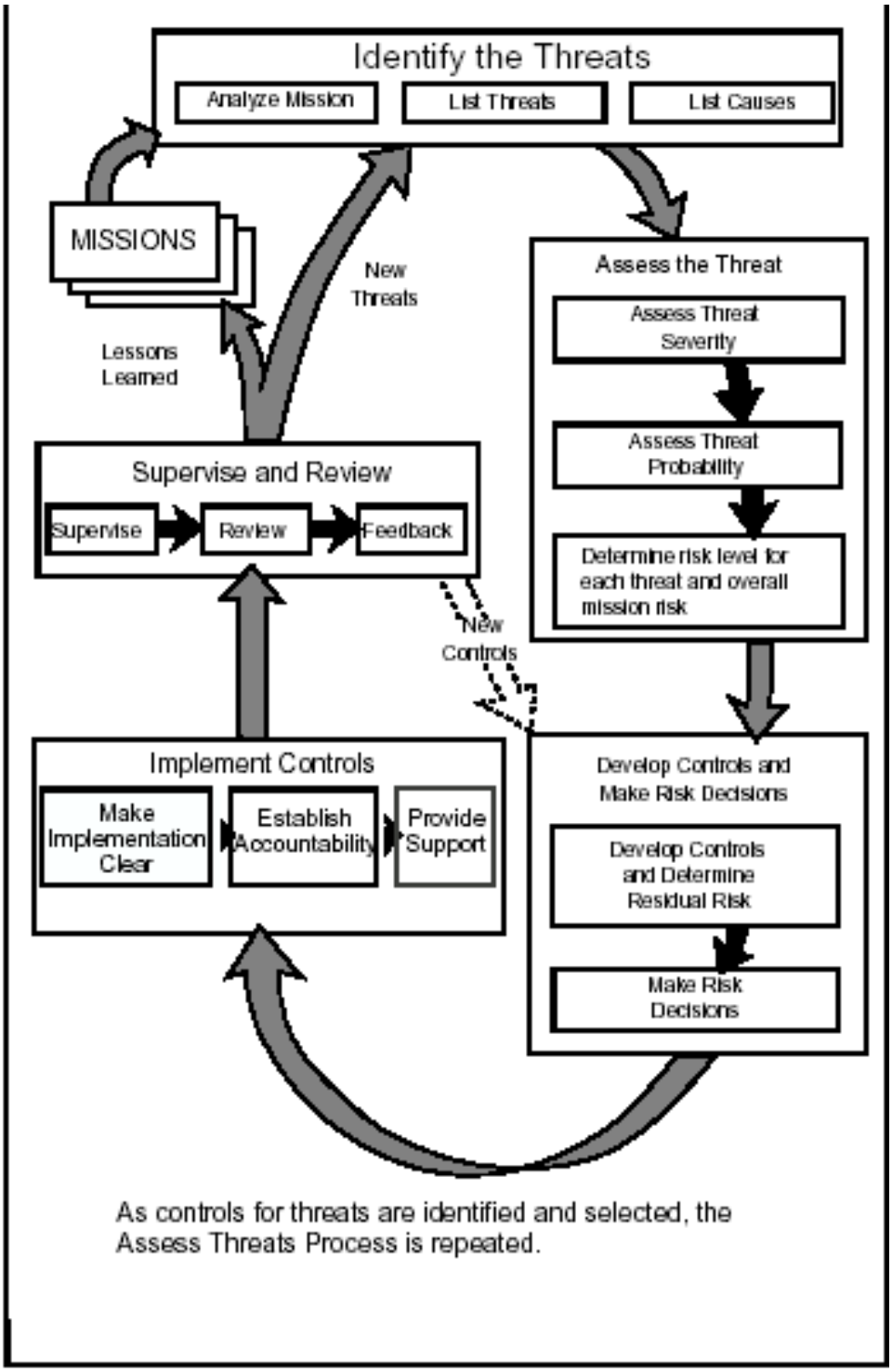

Figure 1. Continuous Application of Risk Management

Source: Department of the Navy, Navy Warfare Development Command, Multi-Service Tactics, Techniques and Procedures for Risk Management NTTP 5-03.5, (Newport, R.I.: February 15, 2001), I-4.

Table I.
Risk Management Steps

Military Decision-Making Process	Risk Management Steps				
	Step 1 Identify Hazards	Step 2 Assess Hazards	Step 3 Develop Controls and Make Risk Decision	Step 4 Implement Controls	Step 5 Supervise and Evaluate
Mission Receipt	X				
Mission Analysis	X	X			
COA Development	X	X	X		
COA Analysis	X	X	X		
COA Comparison			X		
COA Approval			X		
Orders Production				X	
Rehearsal[1]	X	X	X	X	X
Execution and[1] Assessment	X	X	X	X	X

[1]All boxes are marked to emphasize the continued use of the risk management process throughout the mission

Source: Department of the Army, Risk Management (FM-100). (Washington, D.C.: April 1998), II-1.

Table II. Risk Management Execution (Risk Management in Deliberate Planning)					
Deliberate Planning	*Identify Threats*	*Assess Threats*	*Develop Controls Make Risk Decision*	*Implement Controls*	*Supervise and Review*
PHASE I Initiation	JTF				
PHASE II Concept Development	JTF	JTF			
PHASE III Plan Development	MSE	MSE	JTF MSE		
PHASE IV Plan Review			JTF		
PHASE V Supporting Plans	MSE	MSE	MSE	JTF MSE	
EXECUTION	JTF MSE	JTF MSE	JTF MSE	JTF MSE	JTF MSE

Table III. Risk Management Execution (Risk Management in Crisis Action Planning)					
CRISIS ACTION PLANNING	***Identify Threats***	***Assess Threats***	***Develop Controls Make Risk Decision***	***Implement Controls***	***Supervise and Review***
PHASE I Situation Development	**JTF**	**JTF**			
PHASE II Crisis Assessment	**JTF**	**JTF**	**JTF**		
PHASE III COA Development	**JTF MSE**	**JTF MSE**	**JTF MSE**		
PHASE IV COA Selection			**JTF MSE**	**JTF**	
PHASE V Execution Planning			**JTF MSE**	**JTF MSE**	
PHASE VI Execution	**MSE**	**MSE**	**MSE**	**JTF MSE**	**JTF MSE**

Source: Department of the Navy, Navy Warfare Development Command, Multi-Service Tactics, Techniques and Procedures for Risk Management NTTP 5-03.5, (Newport, R.I.: February 15, 2001), II-7, II-8.

Table IV.
"Enhanced" Risk Assessment Matrix
Assignment of Numbers to Rank Risks More Quantitatively

			Probability				
			Frequent	**Likely**	**Occasional**	**Seldom**	**Unlikely**
			A	B	C	D	E
SEVERITY	**Catastrophic**	I	**1**	**2**	6	8	12
	Critical	II	**3**	4	7	11	15
	Moderate	III	5	9	10	14	16
	Negligible	IV	13	17	18	19	20
			Risk Levels				

Table V.
Risk Assessment Matrix

		Probability				
Severity		**Frequent A**	**Likely B**	**Occasional C**	**Seldom D**	**Unlikely E**
Catastrophic	**I**	**E**	**E**	**H**	**H**	**M**
Critical	**II**	**E**	**H**	**H**	**M**	**L**
Marginal	**III**	**H**	**M**	**M**	**L**	**L**
Negligible	**IV**	**M**	**L**	**L**	**L**	**L**

E – Extremely High Risk
H – High Risk
M – Moderate Risk
L – Low Risk