DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON WASHINGTON, DC 20350-2000

OPNAVINST 3500.39C
N09F
02 Jul 2010

OPNAV INSTRUCTION 3500.39C

From: Chief of Naval Operations

Subj: OPERATIONAL RISK MANAGEMENT

Ref: (a) DoD Instruction 6055.1 of 19 August 1998

Encl: (1) Operational Risk Management (ORM) Fundamentals
(2) Operational Risk Management (ORM) Time Critical Risk Management (TCRM)
(3) Operational Risk Management (ORM) Training Continuum
(4) Operational Risk Management (ORM) Evolution and Program Evaluations
(5) Operational Risk Management (ORM) Glossary

1. Purpose. To establish policy, guidelines, procedures, and responsibilities per reference (a), standardize the operational risk management (ORM) process across the Navy, and establish the ORM training continuum.

2. Cancellation. OPNAVINST 3500.39B.

3. Scope. This instruction applies to all Navy activities, commands, personnel, and contractors under the direct supervision of government personnel.

4. Discussion. Risk is inherent in all tasks, training, missions, operations, and in personal activities no matter how routine. The most common cause of task degradation or mission failure is human error, specifically the inability to consistently manage risk. ORM reduces or offsets risks by systematically identifying hazards and assessing and controlling the associated risks allowing decisions to be made that weigh risks against mission or task benefits. As professionals, Navy personnel are responsible for managing risk in all tasks while leaders at all levels are responsible for ensuring proper procedures are in place and that appropriate resources are available for their personnel to perform assigned tasks. The Navy vision is to develop an environment in which every officer, enlisted, or civilian person is trained and motivated to personally manage risk in everything they do (enclosure (1)). This includes on- and off-duty evolutions in peacetime and during

conflict, thereby enabling successful completion of any task and mission. Navy commands and activities accomplish this by executing a four pillar strategy.

a. Policy and Leadership. Implement the requirements of this instruction and ensure all personnel are aware of the expectations for its application and use. Leaders at all levels are responsible for the integration and application of ORM. The active involvement of leadership is a strong signal that they support ORM. Leaders are also responsible for maintaining a command climate that fosters effective feedback and the willingness to raise issues outside their immediate operational control through the appropriate management systems.

b. Training and Education. Make ORM an integral part of orientation, indoctrination, training, and planning for all military and civilian personnel. The level of training should be commensurate with rank, experience, team, crew, or leadership position. The emphasis for junior personnel should be on time critical risk management (TCRM) (enclosure (2)) since they are responsible for “doing” the task and less involved with the planning. Emphasis for more senior personnel should be on in-depth or deliberate risk management (RM). It is important that the Navy institute a sustainable training continuum that addresses individual and organizational application of the ORM process that starts at the point of accession and builds through all the occupational milestones in a career (enclosure (3)).

c. Evaluation and Accountability. It is important to establish methods to measure performance to ensure all Navy activities, commands, and personnel are integrating and applying ORM. This will be done by leveraging existing fleet evaluation infrastructure and using the tools described in enclosure (4).

d. Tools and Resources. Success in integrating RM Navywide requires that the necessary resources, such as time, manpower, money, and equipment be made available and the appropriate tools are developed. Leveraging existing tools and sharing of ideas and best practices is crucial.

e. Four Pillar Strategy Support Documents. In support of executing the four pillar strategy, the following enclosures are provided: ORM fundamentals are described in enclosure (1), TCRM in enclosure (2), ORM training continuum in enclosure (3), evolution and program evaluations in enclosure (4), and glossary of acronyms and terms in enclosure (5).

5. Policy. All Navy activities, commands, personnel, and contractors under the direct supervision of government personnel shall apply the ORM principles and process in all activities in order to optimize mission success and maintain readiness.

6. Responsibilities

a. Office of the Chief of Naval Operations Special Assistant for Safety Matters (OPNAV (N09F)) shall issue policy guidance for the Navy's ORM program.

b. Commander, Naval Safety Center (NAVSAFECEN) is the ORM model manager. Responsibilities include:

(1) Serve as the subject matter expert (SME) for the Navy’s ORM program.

(2) Assist assessment and evaluation commands and activities in standardizing staff ORM evaluation training for fleet ORM evaluations and in developing tailored ORM application training and evaluation solutions.

(3) Maintain an ORM Web page for the latest information on ORM policy, training and education, best practices, tools and resources, and relevant information to support the Navywide integration of ORM principles and processes.

(4) Coordinate with and provide to the Commander of Naval Education and Training Command (NETC) and other formal training commands’ course curriculum managers specific guidance and content recommendations regarding curriculum changes supporting the execution of the ORM training continuum (enclosure (3)) and ORM training standardization.

(5) Explore new technologies and alternative training systems with direct application to managing organizational and individual risks Navywide.

(6) Make recommendations to the Vice Chief of Naval Operations on policy, training, and application of ORM.

(7) Conduct ORM evaluations as part of the NAVSAFECEN survey process using enclosure (4).

c. Echelon 2 commanders, regional commanders and type commanders shall:

(1) Provide uniform force-wide guidance for identifying areas where existing instructions, standard operating procedures (SOPs), and command-specific applications or requirements shall be augmented with ORM.

(2) Establish an ORM evaluation policy for subordinate commands using existing evaluation or inspection processes and periodicities. This shall include evaluating ORM in basic, advanced, integrated, and sustainment phases of unit and group training. OPNAV 3502/1 Evolution ORM Assessment Sheet is an example of an ORM evolution evaluation.

(3) Ensure ORM application training is tailored to pre-deployment unit and group training, operations, and exercises.

(4) Ensure assessment commands integrate ORM applications into evaluation mechanisms (e.g., Training and Operational Readiness Information Services/Training Figure of Merit, statistics, Pbviews, Navy Mission Essential Task Lists, Board of Inspection and Survey Material inspections).

(5) Review evaluations for gaps and best practices, and forward the results to the ORM model manager.

(6) Integrate the ORM process and its application into fleet tactical training and Personnel Qualification Standards (PQS).

d. Systems commands shall provide information, data, and technical support for the resolution of hazards under their cognizance, and incorporate a risk mitigation strategy for system/program development and acquisition. Systems commands' program managers shall incorporate the RM, mitigation, and acceptance strategy processes specified in community policies, guidance and instructions.

e. NETC and all other commands involved in the formal training of personnel shall:

(1) Implement the ORM training continuum (enclosure (3)) throughout the Navy enterprise within existing curricula and instructions in coordination with and as developed by the ORM model manager.

(2) Deliver ORM education and skill sets required for each level within the continuum, and deliver focused ORM

instruction starting at all accession points through all the occupational milestones in a career, as approved by the model manager, and resourced by the applicable resource sponsor.

(3) Provide ORM training at both the knowledge level and application level within the ORM training continuum.

(4) Educate and train or provide education and training tools for ORM organizational or command integration training.

(5) Educate and train, or provide education and training tools, for ORM assistant training to fleet command representatives as per the ORM Application and Integration Course.

(6) Update and modify RM training in coordination with the ORM model manager during periodic curricula reviews.

(7) For NETC, use the human performance requirements review process, and validate and modify ORM curricula as approved by the ORM model manager.

(8) Coordinate with the ORM model manager on proposed revisions to the ORM training continuum.

(9) In coordination with the ORM model manager, create learning metrics for measuring the effectiveness of the delivery of ORM training and education. Maintain results within current education structure and report effectiveness biennially to the ORM manager and model manager.

(10) Recommend implementation of new and innovative training technologies and methodologies to the ORM model manager that demonstrate improvements in the effectiveness of ORM training for application to ORM skill sets.

f. Naval Manpower Analysis Center shall:

(1) Incorporate the ORM process into naval standards, curricula, and wherever specific applications warrant additional requirements.

(2) Integrate specific applications of the ORM process into Navy occupational standards for the Navy’s individual training standards.

g. Commanders, commanding officers (COs), or officers in charge (OICs) shall:

(1) Establish command policy and expectations for the application of on- and off-duty ORM.

(2) Designate in writing the executive officer (XO), or equivalent, as the command ORM manager to oversee command ORM training, implementation, and measurement of its effectiveness within the unit.

(3) Address the ORM process in mission, training, safety, and lessons learned reports. Reports should comment on hazards, risk assessments, and effectiveness of risk mitigation controls.

(4) Inform the chain of command those hazards identified by the ORM process that cannot be controlled or mitigated at the command level.

(5) Ensure ORM risk decisions are being made at the appropriate level in the command.

h. Command ORM manager shall:

(1) Ensure the ORM process is applied to all aspects of command operations and activities.

(2) Select at least one officer and one senior enlisted person, or a civilian equivalent, for designation as ORM assistants. Additional personnel may be designated based on command mission or unit size. They should hold significant leadership or supervisory positions in major departments (e.g., supply, operations, training, nuclear power, maintenance, air, engineering, or weapons/combat systems).

(a) Ensure the command ORM assistants are qualified per this instruction. ORM assistant qualification is earned by completing the instructor-led ORM Application and Integration Course, Aviation Safety Officer Course, Aviation Safety Command Course, Surface Warfare Officer School, or the Submarine Officer Advanced Course.

(b) As the command’s SME, the ORM assistants shall assist command personnel in conducting risk assessments and train command personnel using resources such as ORM assessments, general military training (GMT), ORM training, videos, and lesson

guides and materials provided by the ORM model manager, school houses, or other sources. Suggested venues for this training include training in work centers, at stand downs, indoctrination classes, and training syllabus events.

(3) Direct the use of tools and resources such as Total Risk Assessment and Control System (TRACS), and other accepted processes that include hazard identification, risk prioritization, and hazard controls for ORM assessments on common tasks and evolutions or in developing ORM assessments specific to unique tasks or evolutions.

(4) Include ORM in the orientation and training of all military and civilian command personnel. The level of training shall be commensurate with rank, experience, and leadership position.

(5) Include ORM training in individual development training course plans and individual development plans for civilian personnel.

(6) Incorporate identified hazards, assessments, and controls into briefs, notices, and written plans.

(7) Conduct a thorough risk assessment for all command operations, tasks, and activities including new or complex evolutions, defining acceptable risk, and possible contingencies for the evolution.

(8) Ensure periodic command ORM evolution and program evaluations are completed and logged per enclosure (4).

(9) Submit ORM lessons learned and best practices to the ORM model manager for dissemination annually.

7. Records Management. Records created as a result of this instruction, regardless of media and format, shall be managed per Secretary of the Navy (SECNAV) Manual (M-)5210.1 of November 2007.

9. Forms and Reports Control

a. Forms. The following forms are available at Naval Forms On-line, https://navalforms.daps.dla.mil. Local reproduction is authorized.

(1) OPNAV 3502/1 (JAN 2010) Evolution ORM Assessment Sheet.

(2) OPNAV 3502/2 (JAN 2010) Tailorable Evolution ORM Assessment Sheet.

(3) OPNAV 3502/3 (JAN 2010) ORM Program Assessment Sheet.

b. Report Controls. Reports contained within this instruction are exempt from Reports Control per SECNAV M-5214.1 of December 2005.

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OPERATIONAL RISK MANAGEMENT (ORM) FUNDAMENTALS

1. Overview. This enclosure explains the concepts, principles, levels, and the process of ORM. It provides the foundation upon which to apply and integrate RM for on- and off-duty operations, missions, or tasks.

2. Concept. The ORM process:

a. Is a decision making tool used by personnel at all levels to increase effectiveness by identifying, assessing, and managing risks. By reducing the potential for loss, the probability of a successful mission is increased.

b. Increases Navy's ability to make informed decisions by providing a standardized RM process.

c. Minimizes risks to acceptable levels, commensurate with mission accomplishment. The amount of risk the Navy will accept in war is much greater than what the Navy should accept in peace, but the process is the same. Correct application of the ORM process will reduce losses and associated costs resulting in more efficient use of resources.

d. Applies to off-duty activities due to their own diverse set of hazards and risks. ORM must be practiced 24 hours a day, 7 days a week, and 365 days a year.

3. Terms. See enclosure (5).

4. Key Attributes of RM

a. ORM does:

(1) Enhance mission or task accomplishment by increasing the probability of success.

(2) Minimize risk to acceptable levels commensurate with the benefit or value of mission or task accomplishment while providing a method to effectively manage resources.

(3) Enhance decision-making skills based on a systematic, reasoned and repeatable process.

(4) Provide a systematic structure to perform risk assessments.

(5) Provide improved confidence for individuals to make informed risk decisions. Adequate risk analysis provides a clearer picture of the hazards and of unit capabilities.

(6) Preserve personnel and materiel by avoiding unnecessary risk, thus reducing mishaps and the associated costs.

(7) Provide an adaptive process for continuous feedback through the planning, preparation, and execution phases of any evolution.

(8) Identify feasible and effective control measures, particularly where specific standards do not exist.

b. ORM does not:

(1) Inhibit flexibility, initiative, or accountability.

(2) Remove risk altogether or support a “zero defect” mindset.

(3) Remove the necessity for practice, drills, rehearsals, tactics, techniques, and procedures.

(4) Sanction or justify violating the law and Department of Defense or Navy standards or criteria.

5. Principles of ORM. There are four basic principles that provide the foundation for RM and the framework for implementing the ORM process.

a. Accept Risk when Benefits Outweigh the Cost. The process of weighing risks against the benefits and value of the mission or task helps to maximize success. Balancing costs and benefits is a subjective process. Therefore, personnel with knowledge and experience of the mission or task must be engaged when making risk decisions.

b. Accept No Unnecessary Risk. If all detectable hazards have not been identified, then unnecessary risks are being accepted. Additionally, an unnecessary risk is any risk that, if taken, will not contribute meaningfully to mission or task accomplishment or will needlessly jeopardize personnel or materiel. The RM process identifies hazards that might otherwise go unidentified and provides tools to reduce or offset risk. The

acceptance of risk does not equate to the imprudent willingness to gamble. Take only risks that are necessary to accomplish the mission or task.

c. Anticipate and Manage Risk by Planning. Integrating RM into planning at all levels and as early as possible provides the greatest opportunity to make well-informed risk decisions and implement effective risk controls. This enhances the overall effectiveness of ORM and often reduces costs. Thorough planning identifies associated hazards and the steps necessary to complete the task or mission.

d. Make Risk Decisions at the Right Level. Anyone can make a risk decision. However, the appropriate level for risk decisions is the person that can make decisions to eliminate or minimize the hazard, implement controls to reduce the risk, or accept the risk. Leaders at all levels must ensure that personnel know how much risk they can accept and when to elevate the decision to a higher level. Ensuring that risk decisions are made at the appropriate level will establish clear accountability. Therefore, those accountable for the mission must be included in the RM process. If the commander, leader, or individual responsible for executing the mission or task determines that the controls available to them will not reduce risk to an acceptable level, they must elevate the risk decisions to the next level in the chain of command.

6. Levels of ORM. The RM process is applied on three levels: in-depth, deliberate, and time critical. The basic factor that differentiates each level is time; that is the amount of time available to dedicate to the preparation and planning of missions or tasks. Figure 1 illustrates the levels of ORM and how they relate to each other. Note that there is no defined line where one level stops and the next begins.

a. In-depth. The in-depth level refers to situations when time is not a limiting factor and the right answer is required for a successful mission or task. Thorough research and analysis of available data, use of diagrams and analysis tools, formal testing or long term tracking of associated hazards are some of the tools used at this level. Other examples of application of ORM at the in-depth level include, but are not limited to: long term planning of complex or contingency operations; technical standards and system hazard management applied in engineering design during acquisition and introduction of new equipment and systems; development of tactics and training curricula; and major system overhaul or repair.

b. Deliberate. The deliberate level refers to situations when there is ample time to apply the RM process to the detailed planning of a mission or task. At this level, the planning primarily uses experienced personnel and brainstorming and is most effective when done in a group. The Navy planning process is a good example of ORM application integrated at the deliberate level. Other examples include: planning of unit missions, tasks or events; review of standard operating, maintenance or training procedures; recreational activities; and the development of damage control and emergency response plans.

c. Time Critical. This is the level at which personnel operate on a daily basis both on- and off-duty. The time critical level is best described as being at the point of commencing or during execution of a mission or task. At this level there is little or no time to make a plan. An on-the-run mental or verbal assessment of the new or changed/changing situation is the best one can do. Time is limited in this situation, so the application of the 5-step process has proven impractical and ineffective. The Navy has adopted the ABC*D* Model, enclosure (2), to facilitate use of RM at the time critical level.

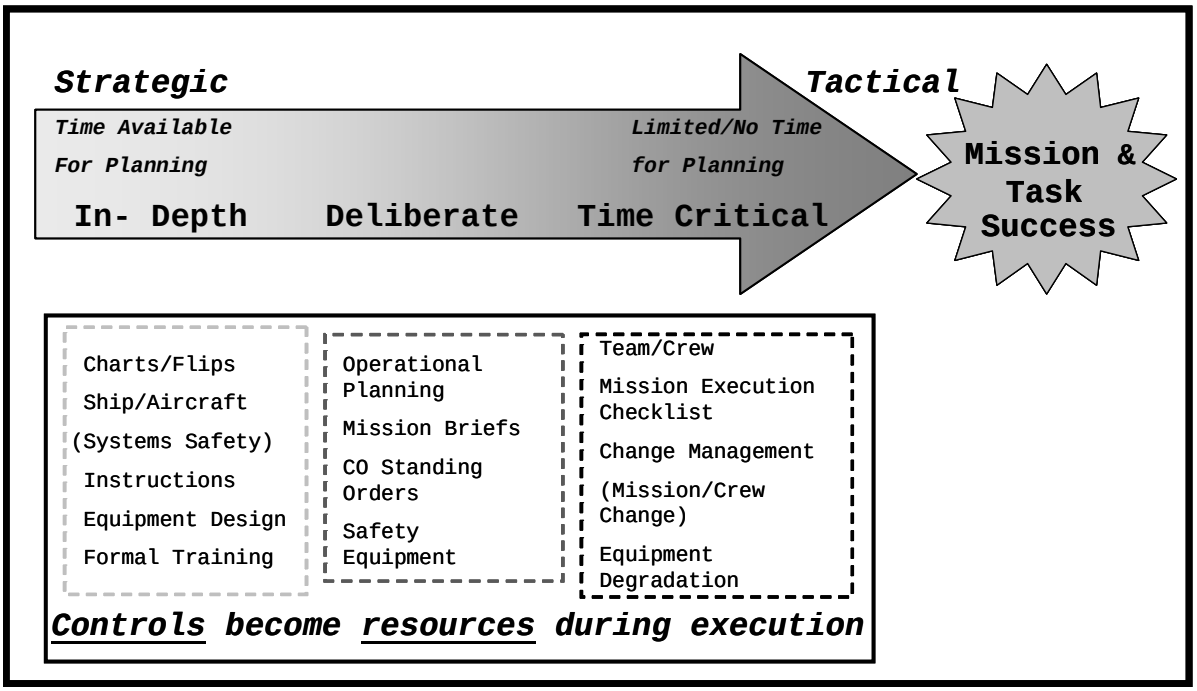

Figure 1: Relationship between the ORM Levels

7. ORM Process

a. Overview. The ORM process (figure 2) is a systematic, continuous and repeatable process that consists of the following basic five steps:

(1) Identify the hazards;

(2) Assess the hazards;

(3) Make risk decisions;

(4) Implement controls; and

(5) Supervise.

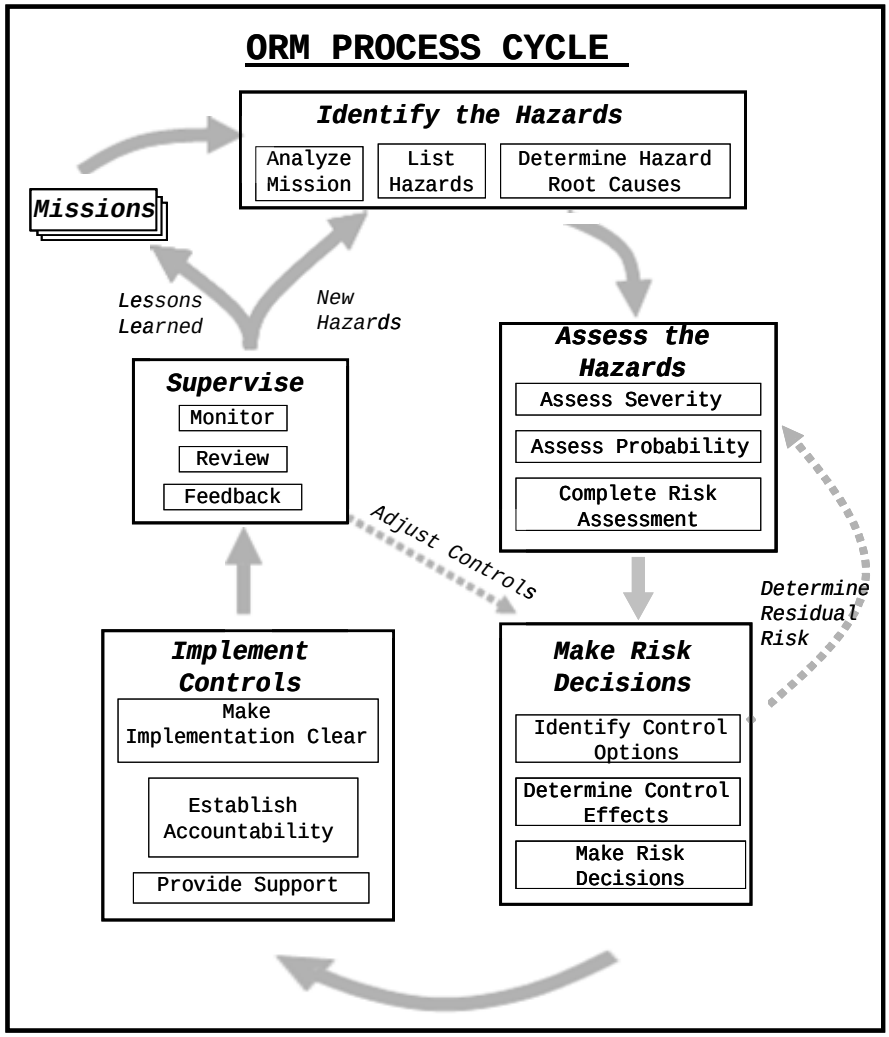

Figure 2: The Five Step ORM Process

b. Process. The first two steps comprise the risk assessment portion of ORM and provide enhanced awareness and understanding of a given situation. This awareness builds confidence and allows for timely, efficient, and effective protective measures. The remaining three steps are the essential follow-through actions to either eliminate the hazard or mitigate the risks.

c. Application Guidelines. The following general guidelines are provided in order to get the maximum benefit and value from this process.

(1) Apply the Process in Sequence. Each element is a building block for the next one. Until hazard identification is complete, it is not possible to properly prioritize risk control efforts.

(2) Maintain Balance in the Process. All parts of the process are important. For example, if only an hour is available to apply the RM process, the time must be allocated to ensure the total process can be completed. Spending 50 minutes of the hour on identification of hazards may not leave enough time to apply the other parts of the process effectively. Of course, it is simplistic to rigidly insist that each of the parts is allocated 10 minutes. The objective is to assess the time and resources available for RM activities and allocate them to the actions in a manner most likely to produce the best overall result.

(3) Apply the Process as a Cycle. Referring to figure 2, notice that "supervise" feeds back into the beginning of the process as the situation changes. If during supervision additional hazards are identified or controls are determined to be ineffective, the process should be repeated and adjustments made appropriately.

(4) Involve People Fully. The only way to ensure the RM process is effective is to involve the people actually exposed to the risks and those who possess subject matter expertise in the mission or task.

(5) Document the Process. Documenting the results of the ORM assessment helps to organize ideas, facilitate an effective briefing of the event, and provide a good reference during execution to evaluate how things are progressing. It also serves as a record for future use to capitalize on lessons learned in order to improve performance. At a minimum, the documentation should include a list of hazards assessed for risk with their

risk controls, residual risks, and risk control supervision responsibilities noted. Two methods of documenting the process are listed below:

(a) TRACS. This Web-based software application assists the user in completing a deliberate risk assessment. The software guides the user through each of the five steps in an intuitive fashion with help screens and process information. Upon completion of an assessment, reports can be printed and the assessment itself can be shared electronically. TRACS is available via a link on the NAVSAFECEN's ORM Web page.

(b) Additionally, there are community hazard tracking databases available in the shipyard, research or acquisition commands.

8. Five Steps of the ORM Process. The following paragraphs describe each step of the ORM process.

a. Identify the Hazards (Step 1). A hazard is any condition with the potential to negatively impact mission accomplishment or cause injury, death, or property damage. Hazard identification is the foundation of the entire RM process. If a hazard is not identified, it cannot be controlled. The effort expended in identifying hazards will have a multiplier effect. Therefore, this step should be allotted a larger portion of the available time. There are three basic actions to be completed in this step:

(1) Analyze the Mission. Conduct analysis by reviewing the plans and orders describing the mission or task, identifying the specified and implied tasks, and defining the requirements and conditions needed to accomplish those tasks and, thus, accomplish the mission. From this, construct a chronological or sequential list of the major events and tasks in a mission or task, breaking the operation down into manageable phases. This is the complete picture of what is expected to happen; it assures all elements of a mission or task are evaluated for potential sources of risk.

(2) List the Hazards. With the mission or task mapped out, each event in the sequence is reviewed for hazards. Hazards can be identified in many ways and from many sources. It is important to involve the operators and those with applicable experience. Review any appropriate reports, lessons learned, and instructions. If time permits, solicit additional expertise. Brainstorming is useful in this preliminary hazard analysis (PHA)

to identify hazards. Asking "what if," a means of thinking about what could go wrong, can help build on the PHA or uncover additional hazards.

(3) Determine the Hazard Root Cause. Make a list of the causes associated with each identified hazard. Often a hazard may have multiple causes, but it is important to identify the root cause. The root cause is the first link in the chain of events leading to mission or task degradation. One technique to help determine a root cause is to keep asking the question "Why?" With the causes identified, risk controls can be applied to mitigate the risk.

b. Assess the Hazards (Step 2). For each hazard identified, determine the associated degree of risk in terms of probability and severity. The result of the risk assessment is a prioritized list of hazards, which ensures that controls are first identified for the most serious threat to mission or task accomplishment. The hazard list is intended for use as a guide to the relative priority of risks involved and not as an absolute order to follow.

(1) Severity. This is an assessment of the potential consequence that can occur as a result of a hazard and is defined by the degree of injury, illness, property damage, loss of assets (time, money, personnel), or effect on the mission or task. Consideration must be given to exposure potential. For example, the more resources exposed to a hazard, the greater the potential severity. Severity categories are assigned Roman numerals according to the following criteria:

Category	Description
I	Loss of the ability to accomplish the mission. Death or permanent total disability. Loss of a mission-critical system or equipment. Major facility damage. Severe environmental damage. Mission-critical security failure. Unacceptable collateral damage.
II	Significantly degraded mission capability or unit readiness. Permanent partial disability or severe injury or illness. Extensive damage to equipment or systems. Significant damage to property or the environment. Security failure. Significant collateral damage.
III	Degraded mission capability or unit readiness. Minor damage to equipment, systems, property, or the environment. Minor injury or illness.
IV	Little or no adverse impact on mission capability or unit readiness. Minimal threat to personnel, safety, or health. Slight equipment or systems damage, but fully functional and serviceable. Little or no property or environmental damage.

Table 1: Severity Categories

(2) Probability. This is an assessment of the likelihood that a potential consequence may occur as a result of a hazard and is defined by assessment of such factors as location, exposure (cycles or hours of operation), affected populations, experience, or previously established statistical information. Probability categories are assigned a letter according to the following criteria:

Category	Description
A	Likely to occur, immediately or within a short period of time. Expected to occur frequently to an individual item or person; or continuously over a service life for an inventory of items or group.
B	Probably will occur in time. Expected to occur several times to an individual item or person; or frequently over a service life for an inventory of items or group.
C	May occur in time. Can reasonably be expected to occur some time to an individual item or person; or several times over a service life for an inventory of items, or group.
D	Unlikely to occur, but not impossible.

Table 2: Probability Categories

(3) Complete Risk Assessment. Combine the severity with the probability to determine the risk assessment code (RAC) or level of risk for each hazard, expressed as a single Arabic number. Although not required, the use of a matrix, as illustrated in figure 3, is helpful in identifying the RAC. In some cases, the worst credible consequence of a hazard may not correspond to the highest RAC for that hazard. For example, one hazard may have two potential consequences. The severity of the worst consequence (I) may be unlikely (D), resulting in a RAC of 3. The severity of the lesser consequence (II) may be probable (B), resulting in a RAC of 2. Therefore, it is important to consider less severe consequences of a hazard if they are more likely than the worst credible consequence, since this combination may actually present a greater overall risk.

Risk Assessment Matrix				PROBABILITY			
				Frequency of Occurrence Over Time			
				A Likely	B Probable	C May	D Unlikely
SEVERITY	Effect of Hazard	I	Loss of Mission Capability, Unit Readiness or Asset; Death	1	1	2	3
		II	Significantly Degraded Mission Capability or Unit Readiness; Severe Injury or Damage	1	2	3	4
		III	Degraded Mission Capability or Unit Readiness; Minor Injury or Damage	2	3	4	5
		IV	Little or No Impact to Mission Capability or Unit Readiness; Minimal Injury or Damage	3	4	5	5
Risk Assessment Codes							
1 - Critical **2** – Serious **3** - Moderate **4** – Minor **5** - Negligible							

Figure 3: Basic Risk Assessment Matrix

(4) Risk Assessment Pitfalls. The following pitfalls should be avoided during the assessment:

(a) Over Optimism. Not being totally honest or not looking for root causes.

(b) Misrepresentation. Individual perspective may distort the data.

(c) Alarmism. “The sky is falling” or “worst case” estimates are used regardless of their possibility.

(d) Indiscrimination. All data is given equal weight.

(e) Prejudice. Subjective or hidden agendas are used vice facts.

(f) Inaccuracy. Bad or misunderstood data nullify accurate risk assessment.

(g) Enumeration. Difficulty in assigning a numerical value to human behavior.

c. Make Risk Decisions (Step 3). There are three basic actions which ultimately lead to making informed risk decisions:

identifying control options; determining the effect of these controls on the hazard or risk; and, ultimately deciding how to proceed.

(1) Identify Control Options. For each hazard, develop one or more control options that either avoid the hazard or reduce its risk to an acceptable level.

(a) Examples of criteria for establishing effective controls are listed in table 3.

Control Criteria	Remarks
Suitability	Control removes the threat or mitigates (reduces) the risk to an acceptable level.
Feasibility	Has the capability to implement the control.
Acceptability	Benefit or value gained by implementing the control justifies the cost in resources and time.
Explicitness	Clearly specifies who, what, where, when, why, and how each control is to be used.
Support	Adequate personnel, equipment, supplies, and facilities necessary to implement a suitable control are available.
Standards	Guidance and procedures for implementing a control are clear, practical, and specific.
Training	Knowledge and skills are adequate to implement a control.
Leadership	Leaders are ready, willing, and able to enforce standards required to implement a control.
Individual	Individual personnel are sufficiently self-disciplined to implement a control.

Table 3: Criteria for Effective Controls

(b) There are numerous control options which can be used to avoid or reduce risk. Some of these include:

1. Reject the Risk. If overall risks exceed benefits or value, do not take the risk. Without the authority to apply the proper or necessary controls, rejecting the risk is a valid option and is a way to elevate the risk to the proper level.

2. Avoid the Risk. It may be possible to avoid specific risks by "going around" them or doing the mission or task in a different way. For example, risks associated with a

night mission or task may be avoided by planning for daytime. This might present other hazards that would need to be identified and assessed.

3. Delay an Action. If there is no time deadline or other benefit or value to speedy accomplishment of a mission or task, it may be possible to reduce the risk by delaying the task. Over time, the situation may change and the risk may be eliminated, or additional risk control options may become available (additional resources, new technology, etc.) reducing the overall risk. For example, a mission or task may be postponed until more favorable weather reduces the risk.

4. Transfer the Risk. Risk may be reduced by transferring all or some portion of that mission or task to another individual, unit, or platform that is better positioned, more survivable, or more expendable. Transference decreases the probability or severity of the risk to the total force. For example, the decision to fly a remotely operated vehicle into a high-risk environment instead of risking a manned vehicle is risk transference.

5. Compensate for the Risk. To ensure the success of critical missions or tasks and compensate for potential losses assign redundant capabilities. For example, tasking a unit to deploy two aircraft to attack a single high value target increases the probability of mission success; or having spare parts in case of an equipment malfunction.

(c) Some types of controls are:

1. Engineering Controls. These are controls that use engineering methods to reduce risks by design, material selection, or substitution when technically or economically feasible.

2. Administrative Controls. These are controls that reduce risks through specific administrative actions, such as:

a. Providing suitable warnings, markings, placards, signs and notices.

b. Establishing written policies, programs, instructions, and SOPs.

c. Conducting job and RM training.

d. Limiting the exposure to a hazard (either by reducing the number of assets or personnel, or the length of time personnel are exposed).

3. Physical Controls. These controls take the form of barriers to and guards against a hazard, such as: personal protective equipment (PPE), fences, or special oversight personnel.

(2) Determine Control Effects. With controls identified, the hazard should be re-assessed, taking into consideration the effect the control will have on the severity and or probability. This refined risk assessment determines the residual risk for the hazard, assuming the implementation of selected controls. At this point, it is also appropriate to consider the cost (personnel, equipment, money, time, etc.) of the control and the possible interaction between controls. Do they work together?

(3) Make Risk Decisions. A key element of the risk decision is determining if the risk is acceptable. This decision must be made at the right level by the individual who can balance the risk against the mission or task potential benefit and value. This individual decides if controls are sufficient and acceptable and whether to accept the resulting residual risk. If it is determined the risk level is too high, the development of additional or alternate controls, modifications, changes, or rejecting the course of action becomes necessary. Leaders can use the risk assessment in conjunction with their commanders' guidance to communicate how much risk they are willing to allow subordinate leaders to accept. It is important to keep in mind that risk decisions are based on the residual risk, which is only valid if the selected controls are implemented and remain effective.

d. Implement Controls (Step 4). Once the risk control decisions are made, the next step is implementation. This requires that the plan is clearly communicated to all the involved personnel, accountability is established, and necessary support is provided. Careful documentation of each step in the RM process facilitates risk communication and the rational processes behind the RM decisions.

(1) Make Implementation Clear. To make the implementation directive clear, consider using examples, providing pictures or charts, including job aids, etc. Provide a

roadmap for implementation, a vision of the end state, and description of expectations. Controls should be presented so they will be received positively by the intended audience. This can best be achieved by promoting user ownership.

(2) Establish Accountability. Accountability is important to effective RM. Ultimately, the accountable person is the appropriate decision maker; the individual responsible for accomplishing the mission or task. However, successful implementation requires delegation of risk control actions. Those assigned should acknowledge the responsibility and be held accountable for the implementation.

(3) Provide Support. A properly applied control has the best chance for successful implementation. In addition to on-going participation of the leadership, this requires:

(a) Providing the personnel and resources necessary to implement the control measures.

(b) Designing sustainability into the controls from the beginning.

(c) Employing the control with a feedback mechanism that will provide information on whether the control is achieving the intended purpose.

e. Supervise (Step 5). Supervise and review involves determining the effectiveness of risk controls throughout the mission or task. This involves three actions: monitoring the effectiveness of risk controls; determining the need for further assessment of all or a portion of the mission or task due to an unanticipated change; and capturing lessons learned, both positive and negative.

(1) Monitor. Monitor the operation to ensure:

(a) Controls are implemented correctly, are effective, and remain in place.

(b) Action is taken to correct ineffective risk controls and reinitiate the RM process in response to new hazards.

(c) Risks and controls are reevaluated any time the personnel, equipment, or mission tasks change, or new events are anticipated in an environment not identified in the initial RM analysis.

(2) Review. When controls are applied and during the mission or task, a continuous systematic review must be accomplished to see if the risks versus the benefits and value are balanced. To determine if appropriate RM controls were applied, compare the earlier risk assessment to the present risk assessment.

(a) To accomplish an effective review, those responsible for the mission or task should identify whether the actual cost is in line with expectations and determine what effect the risk control had on mission or task performance. It is difficult to evaluate the risk control by itself; therefore, the focus should be on the risk mitigation relative to the mission or task.

(b) Measurements are necessary to ensure accurate evaluations of how effectively controls reduce risks. Measurement can be done by simple observation, talking with personnel, or through more formal after action reports, surveys, and in-progress reviews.

(3) Feedback. A review by itself is not enough. A mission or task feedback system should be established to ensure that the corrective or preventative action taken was effective and that any newly discovered hazards identified during the mission or task are analyzed and corrective action taken. It is essential that the feedback system be designed to:

(a) Inform all involved personnel.

(b) Provide input back into the ORM process during execution of the mission or task.

(c) Provide input into a lessons learned database for use by others or for the next event.

(d) Provide for formal or unit level training updates or revisions.

OPERATIONAL RISK MANAGEMENT (ORM)
TIME CRITICAL RISK MANAGEMENT (TCRM)

1. Overview. This enclosure is a practical explanation of TCRM concepts and fundamentals which are necessary for an understanding of the ABC*D* Model and its use as a personal RM tool.

2. Concept

a. TCRM refers to applying ORM at the point of commencing or during execution of a mission or task, at the time critical level. However, the methodology of applying the deliberate 5-step process in a time critical situation has proven to be impractical. The ORM model manager selected the ABC*D* Model (figure 1) based on its foundation in scientific principles, ability to focus individuals, increase their situational awareness (SA), and improve their performance in the time critical environment. It consists of graphic representations or icons and an easy to remember mnemonic ABC*D*:

A – Assess the situation
B – Balance resources
C – Communicate to others
D – *D*o and *D*ebrief the event

b. It is in the execution of the task or mission, where time and resources are most limited, that an individual and organization must learn to be proactive and responsive to ensure mission success.

3. Discussion

a. Experience is the result of all learning events. Therefore, everyone has some experience upon which to draw when responding to an event. The task for leadership is to marshal and coordinate the experience from all personnel involved in a mission or a task. The ABC*D* Model establishes a structure for individuals, teams, or crews to learn new or complex behaviors, skills, or values or gain understanding. Using the ABC*D* Model in a personal or professional application daily will result in deep memory of those learned qualities. When individuals execute tasks, they have an expectation of a response consistent with their experience. Likewise, leadership and other teammates or crew will have an expectation of a response consistent with their experience. Until the incorporation of the ABC*D* Model, there

were inconsistent team or individual responses based on different levels of experience. By recalling and communicating with the same ABC*D* Model, the ability to match a previous mission or task to a new experience provides uniform and consistent responses.

b. The ABC*D* Model provides a common language and structure for a measured response when an individual, team, or crew is executing a routine task or when they are under duress from a more complex situation resulting from additive conditions, crew factors, or task loading. Training to the ABC*D* Model will embed a set of patterns that will help personnel recognize and recall a set of actions to counter risk even when distracted. This simple and easy to remember mnemonic provides individuals with a means to evaluate risks and formulate mitigation strategies on-the-run and can easily be applied in both on- and off-duty situations.

c. The nature of TCRM decisions includes an understanding that:

(1) Using the ABC*D* Model daily creates a habit and trains the brain to continue thinking under duress or stress.

(a) The model is designed to assist when:

1. Working in a dynamic environment.

2. Monitoring a static or routine situation to capture errors.

3. Making a decision with partial information.

(b) In all three situations, it is necessary to develop habits that trigger the TCRM process to “Assess” the situation, “Balance” resources, “Communicate” to others, “*D*o and *D*ebrief” the event.

(c) Additionally, these situations require the continuous use of “Assess,” “Balance,” “Communicate,” “*D*o and *D*ebrief” as necessary. An added benefit and value of the ABC*D* Model is the continuous improvement of skills and knowledge which occurs with self-assessment.

(2) Time critical decision making requires a unique set of skills, which must be practiced.

(3) TCRM relies on the decision maker's previous experience, training, and availability to recall resources from the in-depth or deliberate ORM process.

(4) Time critical decisions are based on pattern matching to past training and experience and the recall of resources in the ABC*D* model format.

(5) In a time critical event, personnel assess the situation, balance their resources, communicate to all concerned, and do some action to complete the mission or task or mitigate risk by acting on the condition, then follow-up by debriefing the results to feedback lessons learned.

(6) Standardizing the communication structure in a time critical situation reduces conflicts and errors, and improves the ability to manage risk and resources.

4. Terms. See enclosure (5).

5. ABC*D* Model. Figure 1 is a visual reminder or icon to assist in the recall of the concepts and principles behind the ABC*D* Model and improve communications during an event. The model identifies and provides a focus for personal or team communication to counter risks or raise the SA during the event.

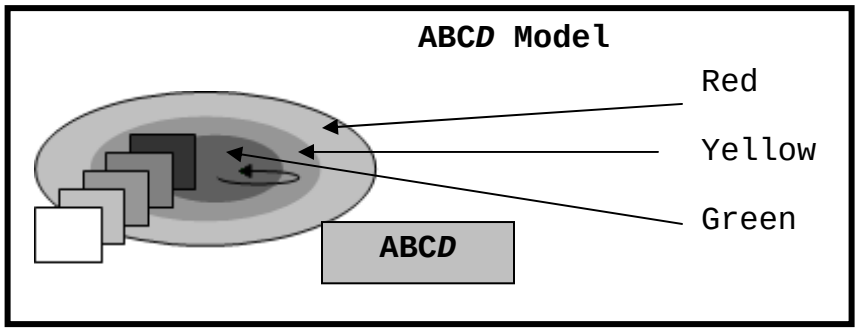

Figure 1: Icons of the ABC*D* Model

a. The target section of figure 1 provides a visual representation of the potential for consequential error or SA. Green indicates errors may occur, but errors will be caught by the individual. Yellow indicates the potential for consequential errors have increased. Red indicates errors may occur that can not be caught and, therefore, become consequential to the task or mission. The target is used during team communication to focus one or more individuals into an understanding of situational

conditions, or an individual can use it as a self-assessment tool to increase SA. The swooping arrow represents the return to good SA.

b. The blocks represent multiple levels of resources (i.e., policies, tactics, procedures, processes, checklists, automation, briefings, external resources, knowledge, skills, and techniques). The redundant alignment is designed to illustrate stacking resources to prevent errors that may become consequential, such as a resource improperly used or a problem within a resource (i.e., flawed checklist or missing procedure).

c. The ABC*D* block represents the TCRM mnemonic. Each letter represents an action to be taken by the individual to mitigate personal or mission related risk by improving SA.

A – Assess the situation
B – Balance resources
C – Communicate to others
D – *D*o and *D*ebrief the event

6. Process. The ABC*D* Model is not a replacement for the 5-step ORM process or a different process of RM. It is the practical application of the 5-step process in a time critical environment. Figure 2 shows the relationship between the 5-step ORM process and TCRM using the ABC*D* Model. The following breakdown explains each letter and expected action.

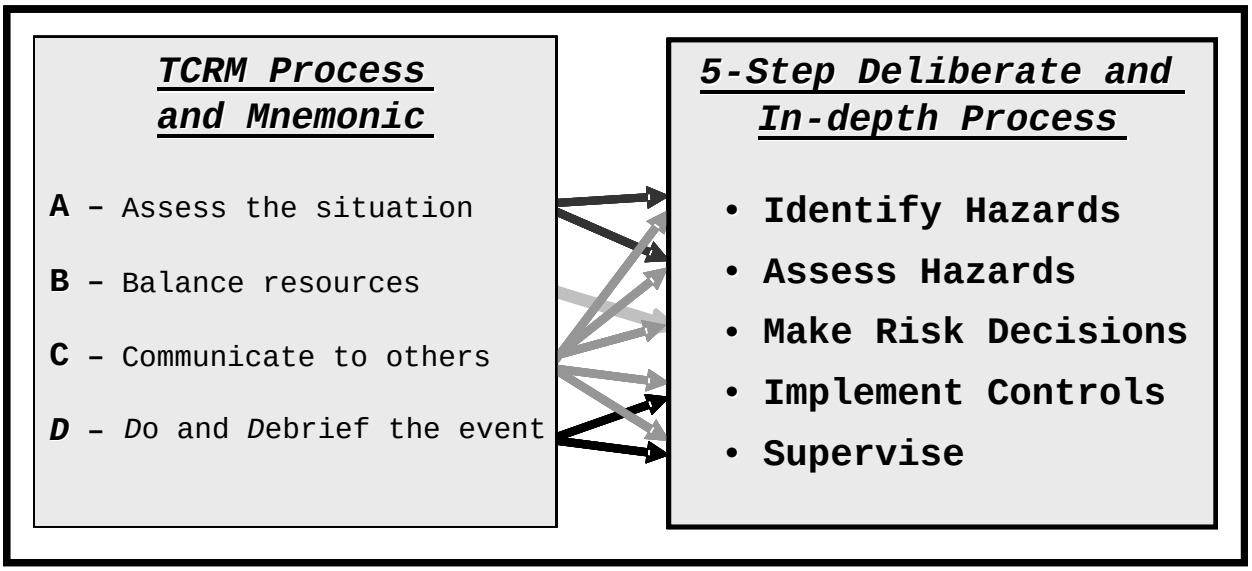

Figure 2: TCRM link to the 5-Step ORM Process

a. Assess the Situation. The “A” in the mnemonic combines the first two steps of the 5-Step ORM process. Assessing risk in a time-critical environment, or where the complexity or perception of overall risk is low requires the key elements of hazard/risk identification and understanding the negative effects associated with those risks/hazards. In a real-time situation, it is essential for individuals to consider the event in which they are engaged and choose the appropriate resources or controls to meet the hazards they identify. In a time critical situation, an assessment of the situation requires an accurate perception of what is happening in a relatively short time and projecting its effect. In other words, maintaining good SA. Unlike in-depth or deliberate ORM, where there is time to assess hazards, it is an individual’s ability to comprehend the situation and apply appropriate, available resources quickly and effectively that can mean the difference between success and failure.

b. Balance Resources. The “B” in the mnemonic is specifically tied to making risk decisions (step 3 of the 5-step process) to mitigate risks. After assessing the situation, personnel must consider using the resources created for the mission or activity. Thorough planning prior to an event will increase the availability of the appropriate resources or “blocks” to effectively mitigate hazards. For example, to have an understanding of the task or mission, proper training, using PPE and knowing personal limitations, are essential aspects of balancing resources.

c. Communicate to Others. Good communication is essential. “C” is to remind us to explicitly communicate during the event, and it is tied to all steps of the 5-step process. Maintaining good SA of additive conditions, task loading, and crew factors is critical to communication. This is because an individual’s perception and communication skills deteriorate as they lose SA. As stress increases or events become more time constrained, communication tends to become limited or non-existent. Individuals who understand this relationship are better able to adjust and mitigate additional risk when they recognize a loss of SA. Although communicating intentions works best when multiple individuals are involved in the event, situations may occur where individuals must weigh decisions on their own. It is crucial that self communication takes place. Asking: “Who needs to know about the situation?” “Who can help or assist?” “Who can provide back-up?” or “Can this be done differently?” are just a few examples of questions individuals can ask to ensure positive and effective communication takes place.

d. *D*o and *D*ebrief. The "*D*" in the mnemonic is tied to steps 4 and 5 of the 5-step process. Do the mission. However, to be successful in the task or mission, the individual must select and use the appropriate resources while adjusting actions as required to ensure event success. A vital key to the process is ensuring that the feedback loop or "Debrief" aspect of the "*D*" is performed. It is beneficial for individuals to follow through and complete the ABC*D* mnemonic loop by identifying what worked, what did not work, and ensuring documented lessons learned are disseminated. Debriefs will improve performance, mitigate risks in future activities, and are essential in completing the ABC*D* loop. Asking questions such as: "Was our assessment accurate?" "Were we lucky?" "How well did we use the resources?" "Was the communication effective?" "What conditions caused us to enter the yellow or red zone?" and "What can we do to improve the events in the future?" are a few examples of questions individuals can ask in the debrief to ensure future activities are improved and risks are reduced.

7. Summary. The practical use of the ABC*D* Model by all Navy personnel will sustain a responsive capability to effectively meet personal challenges or mission contingencies now and in the future.

OPERATIONAL RISK MANAGEMENT (ORM) TRAINING CONTINUUM

1. Overview. An individual's skill set for RM application must be integrated into the knowledge, skills, and abilities learned throughout a naval career. ORM is most effective when included within the occupational learning structure. Learning the ORM process independent of necessary professional skills is an ineffective educational strategy. Therefore, a career-long ORM training continuum must be infused, targeted, and tailored to the appropriate leadership or occupational learning levels within the current training infrastructure. For the training managers, adding ORM concepts will require thoughtful analysis of all the training objectives to make it a viable part of learning. It is not simply a matter of adding an extra chapter, slide, or presentation to meet an external requirement where the learner must make an independent judgment to connect the RM to the training.

2. Continuum. Figure 1 is a simplified illustration depicting various milestones an individual may pass during a career. The top line breaks a career into four general categories, which are used to determine the focus of ORM training. The separation between these is not hard and fast as overlaps are a natural part of any Navy career progression.

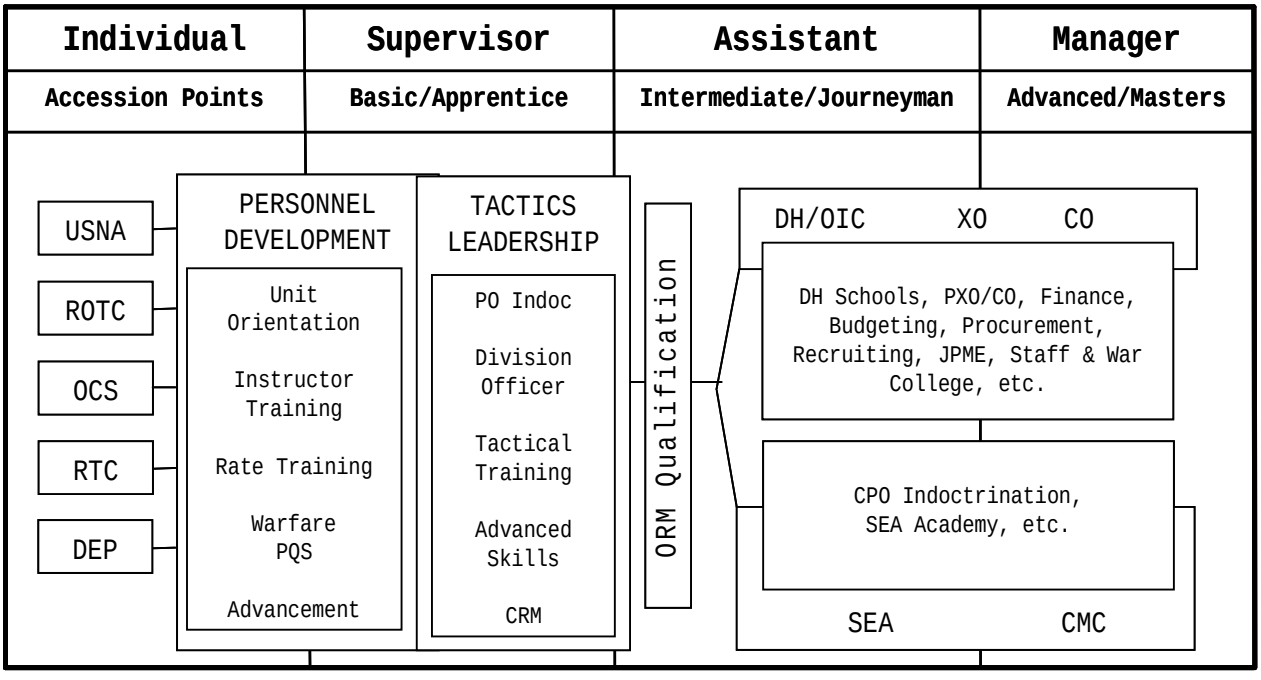

Figure 1: ORM Training Continuum (see key below)

Figure 1 Key:

Acronym	Meaning	Acronym	Meaning
USNA	United States Naval Academy	CRM	crew resource management
ROTC	Reserve Officer Training Corps	DH	department head
OCS	Officer Candidate School	PXO	prospective executive officer
RTC	Recruit Training Center	JPME	joint professional military education
DEP	delayed entry program	CPO	chief petty officer
PQS	Personnel Qualification Standards	SEA	Senior Enlisted Academy
PO Indoc	petty officer indoctrination	CMC	command master chief

a. Individual

(1) Most individuals will enter military service without formal RM skills, but will likely have made risk decisions in a time critical situation. With the transition to a military occupation, those same decisions will likely have an impact on a team, mission, or task. Therefore, every individual must be trained to manage risk using the ORM principles and process.

(2) The accession point of military service is the first structured encounter with formal military education and training for the individual and offers a one-time opportunity to introduce and integrate RM concepts with initial military skills training. The alignment of basic training and RM concepts will instill a confidence in the trainee that ORM will help them manage the demands of training and lay the groundwork to handle their missions and assignments on- and off-duty in the future. This is the time to establish the individual RM mindset.

(3) The duties of the new officer or enlisted person are focused on execution of tasks and, as such, they operate primarily at the time critical level. Therefore, it is logical that their ORM introduction focus on TCRM. The details of which are discussed in enclosure (2).

b. Supervisor. For the purposes of this discussion, the supervisor is broadly categorized as anyone who oversees and is responsible for the actions of others, i.e., most of us. As such, a supervisor models behaviors and mentors subordinates every day. Those behaviors should include RM techniques. Supervisors are involved in planning for and executing tasks as

well as managing available resources (equipment, personnel, etc.) to complete the mission or task. It is appropriate that the focus of their ORM training be tailored toward these skills. Thus their training must not only build on earlier TCRM skills but provide them the skills and tools necessary to conduct ORM at the deliberate level. Supervisors must be able to make informed personal and team risk decisions and recognize when to elevate risks that they cannot control to the right level.

c. Assistant. The command ORM manager will select qualified ORM assistants, at least one officer, one senior enlisted, or a civilian equivalent to assist in performing risk assessments and ensure RM is integrated appropriately across the command, such as in briefs, plans, and command instructions. The ORM assistants are the ORM SMEs and shall demonstrate a solid comprehension of all RM concepts and principles. In addition to ORM knowledge, assistants should be given the skills necessary to facilitate the command integration and ORM training. ORM assistants' training shall include instructor led ORM application and integration training and appropriate prerequisites.

d. Manager. The XO or civilian equivalent will be designated as the command ORM manager. The ORM manager is responsible for making the decisions to accept risk or elevate it up the chain of command. They are also responsible to provide the leadership, tools, resources, and controls for their personnel to successfully complete assigned missions and tasks. The ORM training shall be tailored to a more strategic application where preservation of resources, personnel, and mission or task accomplishment is paramount.

e. ORM Training Focus. As discussed above, it is important to target ORM training to the audience and the environment in which they operate. It must be relevant, progressive, and sequential. Figure 2 illustrates graphically the shift which should occur in the focus of ORM training as the individual progresses through a career and their responsibilities change. The training needs to focus on off-duty, as well as on-duty, as an off-duty loss also decreases readiness and, therefore, mission or task accomplishment.

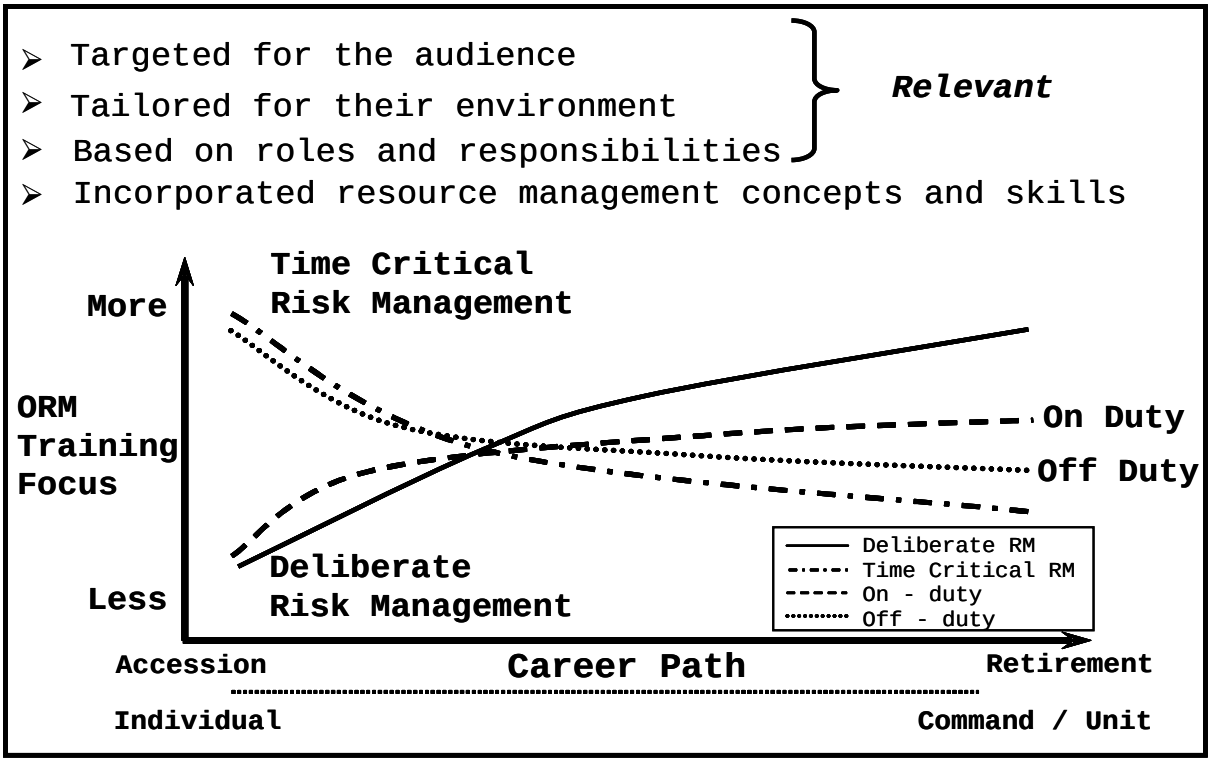

Figure 2: Focus of ORM Training Throughout a Career

3. ORM Training Requirements

a. RM Training. RM training is available in many formats and through various venues. The responsibility for conducting and ensuring the training is completed is detailed under paragraph 6 of this instruction. This section specifically addresses the ORM training requirements for individuals.

b. Periodicity. Individual ORM training periodicity is outlined in table 1.

Training	Periodicity	Course
Individual	Annually	* GMT
	Triennially	ORM Fundamentals Course
Supervisor	With every increase in responsibility, such as team leader to work center supervisor to shift supervisor, etc.	Essentials for Leaders Course

Training	Periodicity	Course
Assistant	When selected as an ORM assistant	Fundamentals, Essentials for Leaders, Application and Integration, and Executive Overview e-Learning courses. Courses are identified as “All Navy” or “Aviation.” Complete as applicable to command assignment via Navy Knowledge Online (NKO) e-Learning Web site.
Manager	Every new tour of duty	Executive Course

Table 1: ORM Training Requirements

* Note: Although ORM GMT is no longer a mandatory GMT course, it will continue to be updated and available at the Navy e-Learning library (under ORM) for periodic use. For this instruction, every individual shall conduct annual ORM training. Training may be accomplished by the following examples: ORM stand downs, command ORM indoctrination, ORM immersion training, Navy e-Learning ORM GMT course, etc.

4. Course Access. All RM training is available at the Navy e-Learning portal of NKO (https://wwwa.nko.navy.mil/portal/home/), ORM training, videos, lesson guides, and materials are available through the ORM model manager, school houses, or other sources. Training requirements should be tailored to the specific environment, both physical and operational, of the command.

**OPERATIONAL RISK MANAGEMENT (ORM)
EVOLUTION AND PROGRAM EVALUATIONS**

1. Purpose. ORM evaluations establish a method of measuring the implementation of ORM as directed by this instruction, accountability for ORM integration, and feedback on the effectiveness of ORM training.

2. Background. The ORM evolution and program evaluations are intended to be integrated within the existing assessment and evaluation structures. These forms were developed in concert with fleet assessment and evaluation command representation.

3. ORM Assessment Types. There are two types of ORM evaluations that can be used by any activity or command for self-assessment, if desired, or as required by higher authority.

a. Evolution Evaluation. The ORM evolution evaluation is an evaluation of a unit, staff, or group's application of the ORM principles and processes during execution of a complex evolution.

b. Program Evaluation. The ORM program evaluation is an evaluation of ORM integration into the command's policies and training and the compliance with ORM directives. It can be used as an internal self-assessment or by activities external to the evaluated command.

4. ORM Evolution Evaluation. All assessment, evaluation, and inspection commands shall integrate ORM evolution evaluations into existing assessment, evaluation, and inspection processes. Develop metrics to measure and monitor the effectiveness of ORM application and integration and provide feedback results within the current reporting structure. Use OPNAV 3502/1 or OPNAV 3502/2 Tailorable Evolution ORM Assessment Sheet.

5. ORM Program Evaluation. All Navy commands shall conduct an ORM program evaluation using OPNAV 3502/3 ORM Program Assessment Sheet at least annually to allow commanders and external evaluators the ability to analyze trends regarding program strengths and weaknesses.

6. ORM Assessor Training. Assessment commands shall designate an ORM assessment coordinator to serve as the command SME on ORM assessment, provide local ORM assessor training, and coordinate with the ORM model manager for tailored ORM application training and evaluation solutions and assist visits.

7. Logs and Records. Commands shall maintain a log of ORM program and evolution evaluations. Note best practices, lessons learned, and training or program deficiencies for unit training and submission to the ORM model manager per this instruction.

OPERATIONAL RISK MANAGEMENT (ORM) GLOSSARY

1. Abbreviations and Acronyms

CO	commanding officer
GMT	general military training
NETC	Naval Education and Training Command
NKO	Navy Knowledge On-line
NAVSAFECEN	Naval Safety Center
OIC	officer in charge
OPNAV	Office of the Chief of Naval Operations
ORM	operational risk management
PHA	preliminary hazard analysis
PPE	personal protective equipment
RAC	risk assessment code
RM	risk management
SA	situational awareness
SME	subject matter expert
SOP	standard operating procedure
TCRM	time critical risk management
TRACS	Total Risk Assessment and Control System
XO	executive officer

2. Terms and Definitions. The definitions provided are applicable in context with ORM.

a. "ABC*D*". The mnemonic for the four actions of TCRM as represented in enclosure (2) of this instruction.

b. Acceptable Risk. The portion of identified risk that is allowed to persist during the mission or task.

c. Additive Condition. Refers to all items that compete for an individual's or crew's attention during the execution of a mission or task. Examples include: equipment malfunctions, change in weather, multiple players, unpredictable information, and change to the mission. Additive conditions may increase task loading or uncertainty and lead to distraction or channelized focus.

d. Brainstorming. This technique guides a group in an interactive exchange of ideas, deferring judgment until the end of the session. It is a good way to quickly generate many diverse ideas. This technique is particularly effective when participants feel free to offer their ideas without fear of criticism.

e. Command (Unit or Organizational) ORM Integration. Integrating ORM into the command relates to reviewing procedures, instructions, and processes, identifying hazards and creating controls associated with those hazards. It is not intended nor should appear to be a "bolt-on" program. Integration should create a transparent application of RM in the everyday working environment.

f. Command ORM Manager. XO or civilian equivalent, qualified per this instruction, who is responsible for implementing RM principles, processes, and policy within the unit.

g. Consequential Error. An error which leads to undesired consequences to property, personnel, or mission (e.g., mishap, personal injury, mission failure, etc.).

h. Controls. Actions taken or measures put in place to eliminate a hazard or reduce the associated identified risk. Some types of controls include engineering controls, administrative controls, and physical controls.

i. Crew Factors. Refers to human factors which affect the capabilities of the individual, crew, or team and can increase the potential for errors. This includes such things as attitudes, personalities, level of training, experience, fatigue, and physiological factors.

j. Exposure. An expression that considers the frequency, length of time, and percentage of people or assets subjected to a hazard. Exposure is a component of risk, but not directly used to assign a level of risk. Rather, it is a consideration in determining probability and severity.

k. Hazard. Any real or potential condition that can cause injury, illness, or death to personnel; damage to or loss of equipment or property; degradation of mission capability or impact to mission accomplishment; or damage to the environment. (Synonymous with the term threat.)

l. "I AM IS". A mnemonic for the 5-step ORM process – "Identify" hazards, "Assess" hazards, "Make" risk decisions, "Implement" controls, "Supervise."

m. Mishap. An unplanned event or series of events resulting in death, injury, occupational illness; damage to or loss of equipment or property; or damage to the environment.

n. Navy Planning Process. The process by which a commander can effectively plan for and execute operations, ensure the employment of forces is linked to objectives, and integrate naval operations seamlessly with the actions of a joint force. As described in Navy Warfare Publication 5-01: Navy Planning, it is a 6-step process which integrates ORM principles and process.

o. Operational Analysis. A chronological or sequential list of the major events or elements in a mission or task. This is the complete picture of what is expected to happen and assures all elements of a mission or task are evaluated for all potential hazards.

p. Operational Risk Management (ORM). A process that assists organizations and individuals in making informed risk decisions in order to reduce or offset risk; thereby increasing operational effectiveness and the probability of mission success. It is a systematic, cyclical process of identifying hazards and assessing and controlling the associated risks. The process is applicable across the spectrum of operations and tasks, both on- and off-duty.

q. ORM Assistant. Designated unit level individual who is an SME on ORM principles and concepts, qualified per this instruction, and supports the command ORM manager in implementing RM within their unit.

r. Preliminary Hazard Analysis (PHA). A means to create an initial list of hazards that may exist in an operation, task, or mission. This builds on the operational analysis and entails listing hazards and associated causes.

s. Probability. A measure of the likelihood that a potential consequence will occur.

t. Residual Risk. Risk remaining after controls have been identified and selected.

u. Resource

(1) In general, a resource is something that can be used to develop controls and include time, money, people or equipment.

(2) With respect to TCRM, a resource is something used to prevent errors, speed up decision making, or improve team coordination. They are typically developed as controls at the

in-depth or deliberate levels of RM. They are broadly grouped into the following categories: policies, procedures and routines; checklists; automation; briefings and external resources; and knowledge, skills, and techniques.

v. Risk. An expression of possible loss, adverse outcome, or negative consequence such as injury, illness in terms of probability, and severity.

w. Risk Assessment. A structured process to identify and assess hazards. An expression of potential harm, described in terms of severity, probability, and exposure to hazards. Accomplished in the first two steps of the ORM process.

x. Risk Assessment Code (RAC). An expression of the risk associated with a hazard that combines its severity and probability into a single Arabic numeral which can be used to help determine hazard abatement priorities. This is typically accomplished through the use of a risk assessment matrix. The basic RACs are: 1-critical, 2-serious, 3-moderate, 4-minor, and 5-negligible.

y. Risk Decision. The decision to accept or not accept the risk(s) associated with an action; made by the commander, leader, or individual responsible for performing that action.

z. Root Cause. Any basic underlying cause that was not in turn a result of more important underlying causes. Describes the depth in the causal chain where an intervention could reasonably be implemented to change performance and prevent an undesirable outcome. The analysis of a hazard may identify multiple causes. However, applying controls to the root cause is ultimately more effective than merely addressing an intermediate cause.

aa. Severity. This is an assessment of the potential consequence that can/could occur as a result of a hazard and is defined by the degree of injury, illness, property damage, loss of asset (time, money, personnel) or effect on the mission or task. When analyzing risk, it is based on the worst credible outcome.

bb. Situational Awareness (SA). SA refers to the degree of accuracy by which one's perception of the current environment mirrors reality.

cc. Task Loading. The number of tasks to complete given a set period of time. Higher task loading increases the potential

for error. Task loading can be reduced by either reducing the number of tasks or taking more time.

dd. Threat. See “Hazard.” With respect to ORM, threat and hazard are considered synonymous.

ee. Unacceptable Risk. The risk when measured versus the benefit or value of the mission or task that cannot be tolerated and must be eliminated or controlled.