Overcoming the Gilligan Factor

Enhancing mission effectiveness through risk management.

by LCDR Thomas Olenchock
Industrial Hygienist, U.S. Coast Guard Office of Safety and Environmental Health

Who remembers the television show "Gilligan's Island"? Do you think the professor and Mary Ann expected they were about to embark on a fateful three-hour tour? Would they have done anything differently if they knew about operational risk management? Just like they made the decision to get on the *S.S. Minnow,* we make risk-based decisions every day, whether we realize it or not. It is the weighing of the risks and benefits associated with the activities that we engage in that defines operational risk management, or ORM.

ORM is a simple way to discuss and evaluate our risks while helping us to look at the less obvious hazards we may encounter. Figure 1 shows the seven steps of ORM. While these seven steps may look like a lot, the process steps are fairly simple—you decide what you are trying to do, examine the hazards, assess the risk, evaluate your options, decide which option to undertake, conduct the task, and re-evaluate your risks.

The Steps in Operational Risk Management

Step one: **Identify what you want to do.** This may appear to be an obvious step. However, you may not take into account that every step in a process can have a different risk associated with it.

It's easy to forget that the routine tasks we perform every day may pose as much or more risk to us than those we only do once in a while. For example, people often take traveling somewhere, such as transit to a ship terminal for a cruise, for granted. Yet the national vital statistics system claims that the leading cause of accidental fatalities is motor vehicle crashes. Knowing this, when we apply ORM to a trip to the terminal, the tasks could include choosing a method of transportation (car, motorcycle, vanpool, metro, etc.), driving to the terminal, and then parking.

Step two: **Identify the hazards**. This means simply looking at each of the steps required to perform the task and assessing the various dangers surrounding the chosen activity. In the example above, what are the variables on the professor's trip to the ship terminal? In this instance, other drivers on the road, not getting enough sleep, or speeding enroute. Each poses a unique hazard. In similar fashion, each of the steps involved in your activities has its own hazards.

Step three: **Assess the risk.** This is where operational risk management comes into play in those tasks we perform every day. We have all experienced that feeling that something is wrong while involved in a task—when those hairs on the back of your neck stand up

and doubt enters your mind. The bigger problem is that many times we lack the tools to identify how bad the hazard truly is. Operational risk management gives us those tools. It provides us with ways to model hazards and risks, and to give them a tangible numerical value. A couple of these tools will be discussed later, but for now, understand that everything has a risk—some are acceptable and others are not.

Step four: **Identify your options.** This allows you to consider less hazardous steps to make your entire process safer. This also gives you the ability to tailor your tasks to minimize those specific risks identified, using the tools. If you looked at your commute and realized the most hazardous part of your commute was driving without sufficient rest, you might consider the options of public transportation or getting a full eight hours of sleep before driving. Each option not only reduces the risk of you falling asleep while driving, but also increases the likelihood of you completing your goal of getting to the dock on time.

Step five: **Weigh the risks against the benefits.** In the real world we don't get to eliminate every hazard. There will always be a job that requires us to do something that is dangerous, like entering a confined space, sailing a boat, painting, sand blasting, or even driving to work.

This is where you need to make a conscious effort to decide: "I know the risks. I have tried to reduce them. So do I really need to do this?" The point is, here you can make an informed decision and no longer rely on that "gut feeling" to warn you that something is wrong.

Step six: **Perform the task.** Without action (or a conscious decision not to act), the rest of the process is an exercise in futility. In this manner, the process will fail as quickly as that latest fad diet. If you do decide to go another way, or change your criteria, it is simple to review your risk assessments and then continue the process. The flexibility allowed by risk management easily and rapidly adjusts to all changes.

Step seven: **Monitor the situation.** It's been said, "The best-laid plans of mice and men often go awry." This statement is often true when dealing with real-time operations, where the variables are constantly changing. Maybe this is what happened when that "tiny ship was tossed," or maybe it was poor planning.

We will never know for sure, but at least we can explore the possibilities through the operational risk management process. Without continual monitoring of our processes and continually re-evaluating the risks, we may find our best-laid plans truly have gone awry and we now face a more challenging risk than expected.

This final step turns a process into a system. It is no longer a one-time evolution that allows you to check a box to say you did it. It is a feedback system, one that must continually be revisited throughout the entire activity, especially when circumstances change.

The Green, Amber, Red Model

So how did the crew of the *S.S. Minnow* get stuck on that remote island? Well, let's see if applying the ORM model of green, amber, red (GAR) would have suggested they reconsider their decision to sail that day.

The GAR model (Figure 2) has six inputs that are equally weighted to evaluate risk. These factors are:

- supervision,
- planning,
- crew selection,
- crew fitness,
- environment,
- event complexity.

Each of these categories is scored on a scale of 1 to 10, with "10" being a high risk.

Analyzing the "Gilligan Factor"

Supervision: In this case, the skipper was providing the supervision on the *S.S. Minnow.* I think we can all agree that he was not a substantial source of risk and could be scored low—let's call it a "1."

Planning: I would say it is reasonable to assume it is a trip they had made several times before, and would score it around a "2."

Crew selection: This is where we can factor in Gilligan. Here I would have to say that the "little buddy" is a walking risk and I would score him around a "7."

Even in just these first three categories you may be saying that you disagree with me. That's great! There's another program in the Coast Guard called team coordination training (TCT), which discusses ways to implement risk management principles in daily operations. Two of the issues it teaches are effective communication and assertiveness. When

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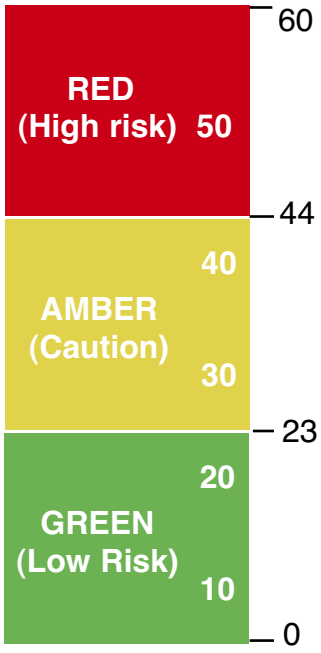
GAR Evaluation Scale



Calculating Risk

SUPERVISION	
PLANNING	
CREW SELECTION	
CREW FITNESS	
ENVIRONMENT	
EVENT/EVOLUTION COMPLEXITY	

To compute the total level of risk for the six elements (supervision, planning, crew selection, crew fitness, environment, and event complexity), assign a risk code of 0 (for no risk) through 10 (for maximum risk) to each element. This is your personal estimate of the risk. Add the risk scores to come up with a total risk score.

Figure 2: The GAR model can address more general risk concerns, which involve planning operations, or reassessing risks as we reach milestones within our plans.

Severity (S) _____

Describes potential loss or consequences of a mishap (i.e. extent of injury, illness, equip. damage, mission degradation).

0 = No potential for loss
1 = Slight
2 = Minimal
3 = Significant
4 = Major
5 = Catastrophic

Probability (P) _____

Likelihood that consequences will occur.

0 = Impossible
1 = Remote under any conditions
2 = Unlikely under normal conditions
3 = About 50-50
4 = Greater than 50%
5 = Very likely to happen

Exposure (E) _____

Amount of time, number of people involved, number of repetitions.

0 = No exposure
1 = Below average
2 = Average
3 = Above Average
4 = Great

Specific Hazard: _____

Risk = S x P x E = _____

Values	Risk Level	Action
80-100	Very High	Discontinue, Stop
60-79	High	Immediate Correction
40-59	Substantial	Correction Required
20-39	Possible	Attention Needed
1-19	Slight	Possibly Acceptable
0	None	None

Figure 3: The SPE model can address specific hazards, such as those involved in launching or recovering a small boat or the meeting of two vessels in a congested waterway.

you apply TCT teaching to this issue, you can see that your disagreement is actually an opportunity for a team to discuss concerns and look at the risk assessment in a different light.

Crew fitness: I would rate crew fitness a "2." Remember this is not just rating weight and strength, but also takes into consideration things like fatigue; alertness; and external stresses, like family life or pending court or work problems.

Environment: Sailing or flying into a typhoon sounds like a very high-risk maneuver to me. I would rate environment as a "10." Environment also factors in the platform or location you are working. For example, the *S.S. Minnow* would not weather the typhoon as well as would a large, steel-hulled vessel.

Event complexity: Finally, event complexity would probably be low. It was only a three-hour tour, so I'd rate it a "3."

Now that we have scored each of the categories, we simply add them together and get a score of 25.

- Supervision = 1
- Planning = 2
- Crew selection = 7
- Crew fitness = 2
- Environment = 10
- Event complexity = 3

When we look at this score, we find this falls into the grouping of "amber," which clearly tells us that something should be addressed to help mitigate the risk. We are further able to look at the categories to see that the environment is the largest source of risk. By postponing the tour, or taking a different route, or applying another minor correction, we could reduce that risk and make it a safer three-hour tour.

The Severity, Probability, and Exposure Model

That planning piece of the green, amber, red model is just an assessment of the risks associated with the plan. But how can we reduce risk during the planning process? The operational risk management green, amber, red model does not lend itself easily to planning. That is why ORM contains several risk models to choose from. For planning, the simplest one to use is the severity, probability, and exposure (SPE) model (Figure 3).

With the cruise of the *S.S. Minnow*, I would rate the severity (being stranded for years or even perishing) as a "5" on a scale of 1 to 5. I would rate the probability as "very likely" if you are going out with that typhoon around, so that would also be a "5." Exposure is the number of people affected—seven, for the cruise we're considering. I would consider this to be an average exposure for the cruise company, so I'd give it a score of "2."

- Severity = 5
- Probability = 5
- Exposure = 2

This plan to go out in a typhoon would have an SPE score of 50 (Risk = S x P x E), which clearly indicates to the company that substantial corrective actions would be needed to make this tour a success.

Enhancing Mission Success

Now that we understand the basic principles of operational risk management and some of the ways it may be applied, we must ask: "Why should we do it at all?" Hopefully, if you are still reading this, you understand that it is a tool to help you succeed, regardless of the task you need to complete. Let me elaborate a little. First, there is nothing in the models or the process that tells you NOT to do something. It is an objective system that lets you determine what you think the most severe hazards are and where you can focus your resources to mitigate those risks.

The system tells you to weigh those risks against the benefits. Particularly with Coast Guard jobs, we find that some of our missions must be completed despite the high risks associated with the job. This is the type of situation in which ORM truly helps enhance our success. The USCG formalized the concepts of ORM in 1999 with the publication of Operational Risk Management (COMDTINST 3500.3). However, the ideals of risk management have been present in various communities much longer than that.

The models point to your hazards and allow you to address them prior to the mission. What you end up with is a tool that you have been using without even knowing it. Now you can consciously look at your day and apply an objective tool to help your team communicate, focus your resources where they will be most effective, and accomplish more tasks, safely.

About the author:
LCDR Olenchock is an industrial hygienist in the U.S. Coast Guard Office of Safety and Environmental Health. He has spent the past three years working on risk management issues surrounding sector operations, vessel inspections, and safety management. He holds a Master of Science degree from the University of Washington in industrial hygiene.