Risk-Decision Methodology

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While teaching the military decision-making process (MDMP), I found planners struggle with two unglamorous parts of it: risk management and course of action (COA) selection. And I can see why. Risk management, often relegated to slips, trips, and falls, feels tacked on, and COA selection feels redundant when staffs are habituated to producing a directed COA (with two throwaways). But cutting these corners wastes an opportunity to make MDMP easier, faster, and able to produce better plans. In the remainder of this paper, I will show you what I mean by introducing the risk-decision methodology (R-DM).

1. Evaluate Operational Risk
a. Identify Risks
b. Evaluate Risks
c. Develop Conceptual Counters
2. Develop Risk-mitigating COAs
a. Develop Suitability
b. Develop Feasibility
c. Create Distinguishablity
3. Evaluate COAs Risk Mitigation
a. List and Weight Risks
b. Compare by Quantification
c. Select COA

Figure 1. Steps within the Risk-Decision Methodology *(U.S. Army Graphic)*

R-DM addresses a conceptual shortcoming in the evaluation of multiple COAs in MDMP by creating a logical linkage between risks (impediments to end state), counters to those risks, and selection of a COA based on its risk reduction. R-DM operates within the context of the MDMP and consists of the following steps:

Evaluate Operational Risk

Evaluating operational risk is the identification, understanding, and conceptual mitigation of threats to a military end state.

Identify Risks. R-DM begins at the risk management substep within mission analysis and starts with the creation of a list of all the substantive threats to your end state. If that seems like a lot of work, don't worry, you've probably already done it with your military problem statement (a previous step of mission analysis). Risks in R-DM are those threats, terrain, and constraint factors that stand in the way of accomplishing the mission—those things your problem statement intends to overcome.

Threats are the enemy's key assets that it will use to oppose your mission, such as a combat brigade, a disruption zone, or a line of communication, etc. Terrain is the physical ground (or air, sea, et al.) that combat will take place on, including the weather. Examples of terrain as a risk factor might include a long approach march, or a significant map feature to overcome, or a monsoon grounding all aircraft. Lastly, constraint factors are everything else, including friendly conditions placed upon the unit, or the limits of operational reach, or any of a hundred other things that impede an end state.

Evaluate Risks. Evaluate your list of risks to determine how dangerous they are. Evaluation, conveniently, uses the Army composite risk management (CRM) methodology: how likely is an identified risk to affect you, and how badly can it do so? An enemy battalion sitting on the objective will "frequently" affect the mission, and its probable impact is catastrophic, hence its risk is extremely high and represents a top concern. Evaluate as many factors as you have identified in this manner.

To the greatest degree possible, all risks should be quantifiable things: numbers of enemy combat systems, kilometers of terrain to cross, gallons of fuel needed, etc. Non-quantifiable items, like public sentiment or enemy resolve, are to be avoided in R-DM. Non-quantifiable things, while certainly real, are obviously not measurable and, more to the point, can only indirectly be affected by combat operations. For instance, enemy will is very real, and it can be broken, but one cannot shoot "will." Only indirectly can intangibles like will be broken, such as by destroying enemy equipment and troops, which conveniently are quantifiable things.

Once risks are evaluated, categorize them into risks to mission and risks to force. Risks to mission are those things that can defeat the purpose of your operation (but won't necessarily get any friendly equipment destroyed or troops killed, at least not directly; a good example of this is being late). These are inherently the most important, because they directly affect the mission's accomplishment. Conversely, risks to force are those factors that remove friendly troops and equipment necessary to achieve your end state. These are clearly important, as well, but they are one step removed in priority because they are, candidly, means to an end, not the end itself.

Once all risks are categorized, prioritize them. As previously mentioned, risks to mission categorically rank higher, but risks to force are a close second, and so must never be omitted. Within both risks to force and mission, rank-order each threat by its total risk. Logically, higher risks are higher priority. Higher priority items get planned against first in COA development, after the creation of conceptual counters that you'll see in the next step.

Develop Conceptual Counters. With our categorized and prioritized list of risks, we now develop their conceptual counters. Conceptual counters are generalized, "perfect world" things needed to mitigate or defeat risks. These counters are not concrete plans or schemes tied to any COA, hence they are never "B Troop will…" Rather, they are broad and conceptual, such as "the defending force is defeated by a three-to-one combat ratio" or "enemy air defense systems are mitigated by persistent suppression."

This list of conceptual counters to risk is the method by which you will develop courses of action. And, the more conceptual counters you can come up with, the greater diversity of COAs you will be able to create. Using the above enemy air defense example, artillery suppression will work, but so might an effective deception plan that has the enemy looking somewhere else. If there is only one conceptual counter to a risk, that means planners have painted themselves into a corner as they move into COA development.

Develop Risk-Mitigating Courses of Action

Knowing the operational risks relevant to a mission, planners may then develop courses of action against them. The doctrinal screening criteria for a viable COA are: suitability, feasibility, distinguishability, acceptability, and completeness. R-DM addresses suitability, feasibility, and distinguishability.

Develop Suitability. Suitability is a plan doing what the mission needs it to do. It is directly related to operational risks in that risks are what stand between the present and desired end states. Furthermore, suitability is more closely tied to risk to mission than it is risk to force because risk to mission directly affects purpose. As such, mitigation of risks to mission is what allows a force to win its fight. Combined with a properly selected end state, this achieves suitability.

One thing to remember is that as COA development progresses (even into wargaming), our understanding of operational risks grows. This growth is informed by our knowledge of the battlefield, which itself is fed by the priority intelligence requirement (PIR). PIR, of course, is information about the enemy and terrain necessary for the conduct of an operation. Resultantly, PIR informs and updates two things: what the risks are and how serious they are. Initial intelligence at the start of MDMP allowed us to know what we are up against and develop a conceptual counter; updated intelligence confirms those things are still accurate and relevant and allows us to concretize our plan (e.g., we knew there was an enemy tank battalion out there, so conceptually we understood we would need anti-tank systems—but now we know where the enemy is, and hence know where to put our anti-tank systems).

A COA achieves suitability once it mitigates risk down to the point where a friendly element is more likely to win than not. Examples might be a minimum force on the objective, or setting conditions by a no-later-than time, etc. While war is never just a numbers game, numbers really help at knowing when you have reached a tipping point. For instance, you can count how many troops both sides have, and if you have a certain degree of numerical advantage, you're more likely to win. This sort of calculation can be done for almost any battlefield consideration and is inherent in doctrinal COA development.

Develop Feasibility. Feasibility is the capacity to achieve an end state with current or accessible resources. It is closely linked to risk to force because it directly concerns your resources, particularly troops and equipment. However, risks to force, perhaps counterintuitively, are mitigated by other resources. These can be tangible, like body armor to stop bullets or helicopters that allow you to avoid an ambush, or intangible, like training, planning, and command & control.

Just as PIR informed suitability, the friendly forces information requirement (FFIR) feeds feasibility. FFIR, information we need to know about our own forces, gets translated into a staff's running estimates and allows us to assess our resource base. Resources are always finite, and since risks to

force are countered by resources, a COA is not feasible if it requires more resources than you have or can get. This matching of identified risks to actual resources is where you turn a conceptual counter into reality.

Create Distinguishability. Distinguishability refers to multiple COAs being substantively different from one another. It's also another area that MDMP planners often struggle with. Thankfully, R-DM offers a way to create distinguishable COAs, and you already did it in a previous step. If you were able to develop more than one conceptual counter to each identified risk, you already have multiple options for accomplishing your mission. Recalling the air defense example I used in the last section, a unit could suppress the enemy's defenses with artillery, or it could pull their attention away with a deception. Multiple conceptual counters to risk directly translate into multiple distinguishable COAs.

Evaluate COAs' Risk Mitigation

You now have multiple COAs that are suitable, feasible, and distinguishable (R-DM does not address acceptability and completeness). Once complete with wargaming, you now compare these COAs against each other and select one. Many planners have a particularly hard time with this, but R-DM offers a logical approach. The heart of R-DM is making a decision based upon effective risk management and thereby achieving an end state. In sections one and two, we have identified risks and created plans to defeat them. In section three, we choose the right plan by using the risks themselves as the evaluation criteria.

List and Weight Risks. List between two and four of your highest identified risks (preferably three), with at least one being to mission and another to force. These are your COA evaluation criteria. Once listed, weight them against each other. Remember that risks to mission are closer to the accomplishment of the end state, so they are always weighted higher than risks to force. The degree of weighting (like being twice or three times as important), as well as any sub-weighting (risk to mission A is more important than risk to mission B), is completely at the planner's discretion.

Compare by Quantification. Remember that risks within R-DM are quantifiable things, so discerning how good one plan is versus another is a matter of measuring how well your COAs reduce each risk in the evaluation criteria. Those that reduce more numerical risk are better.

Once analyzed, you may want to simply say that one COA ranks first at a particular criterion, or you may want to show the numbers. Referring again back to the enemy air defense example, let's say we discovered that a deception plan is only expected to prevent enemy fire for half as long as suppression. In that example, suppression scores first, and deception second. But it might be advantageous to know that suppression offers sixty minutes of no enemy fire, whereas deception offers thirty.

Select a COA. If the data that was fed into the planning process was good, the COA that reduces the greatest aggregate risk is the most likely to succeed. Aggregate risk is all criteria put together, including their weighting. The COA with the least risk should be selected.

However, this part of the planning process is one last hurdle that unit's trip on. You've selected a plan for execution, but did the staff just waste hours, days, or weeks on two now-discarded COAs? Or, since two plans are going to be dumped no matter what you do, wouldn't it have been better to have just made one that was what the commander wanted anyways, garnished with a couple throwaways?

Absolutely not. Doctrinal MDMP produces three courses of action for a reason: options. One COA always becomes the primary plan, but the other two, since they were also fully capable of achieving the end state, become your branch plans and your deception plans. Branch plans, of course, are like "plan Bs" for the same mission, triggered as necessary by new data and circumstances. Deception plans, on the other hand, are actions that mask a friendly unit's true intentions. These plans come from unchosen COAs, since they could have worked, and are therefore very believable.

Conclusion

Operational risks are measurable things that stand in the way of an end state. COAs are developed to mitigate risks until a force is more likely to win than not. Finally, COAs are evaluated by how well they reduce aggregate risk, and the one that reduces the most is the best option. This methodology offers a quantification-based approach that simplifies rapid planning, reduces guesswork, and increases the chances of success in combat.

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