

# Operationalizing Risk Management for Divisions and Corps

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Risk is a deliberate exposure to potential injury or loss when the commander judges the outcome in terms of mission accomplishment as worth the cost, as defined by ADP 6-0. Commanders must accept risk for a chance to reap the rewards of employing their combat power. However, commanders do not simply gamble with their division or corps. They have an entire staff that collects and refines information, allowing them to minimize risk to mission and risk to the force. Division and corps staffs excel at determining how U.S. forces will engage and defeat the enemy. However, most staffs require improvement in mitigating enemy effects on friendly combat power and the mission. It is the intent of this article to present a methodical approach to operationalize risk management for corps and division level operations that informs the commander's friendly forces information requirements (FFIR) providing him an edge to win at the decisive point.

- Current army risk model is accident focused and is difficult to apply at higher echelon large scale combat operations (LSCO), and a paradigm shift is needed for better applicability to LSCO
- Risk should be avoided, eliminated or mitigated before the commander accepts residual risk. The warfighting functions (WfFs) are linked to these methods.
- FFIR should be developed with the same rigor as Priority Intelligence Requirements (PIR)
- Risk management begins during mission analysis. Wargaming is the laboratory to test risk reduction measures and should assist in developing Decision Points.
- The commander should be presented risk visually in time, space and purpose with linked FFIR to drive decisions.

Staffs discuss risk during each phase of the military decision making process (MDMP) as well as during operations. However, these risks often remain nebulous and poorly understood. Staffs owe it to the commander to capture and operationalize risk management to preserve combat power and achieve the mission.

It was the fifth warfighter for our protection observer, controller, trainer (OC/T) team and it was our job to train the division's protection staff on how to keep its combat power alive. However, the enemy always has a vote during combat operations and the OC/T team observed the same combat power losses from previous warfighters manifesting themselves again. The division commander directed the protection cell to update the critical asset list (CAL) and defended asset list (DAL)<sup>1</sup> and to re-look the scheme of air defense, but losses continued. The division protection chief, dutifully following the army risk management model, identified many of the battlefield hazards, articulating each on his risk matrix,. Enemy fixed wing, rotary wing, and chemical biological radiological and nuclear (CBRN) weapons use were all captured, assessed, mitigated and assigned residual risk, yet losses continued to occur at an unacceptable rate. Clearly, the staff captured the enemy threats but friendly combat power losses always came as a surprise to the staff and commander. "Why was the staff failing to anticipate where we would take losses, and why were they struggling to do something to stop it?" "What could the staff do to better understand the risk to combat power?" These questions drove the protection OC/T team to examine the Army's risk assessment model in great detail. What emerged is "a way" that, if employed properly, is

effective at determining risk for division and corps level operations, informing the commander’s FFIRs and operationalizing the risk management process.

**Risk – A Soldier’s Road Trip versus the Division Offensive Operations in LSCO**

Before exploring new ways to see risk for division and corps, let us examine how the Army conducts risk assessment. Army Technical Publication 5-19 (ATP 5-19), outlines risk assessment and mitigation using the identify, assess, control, implement and supervise methodology.

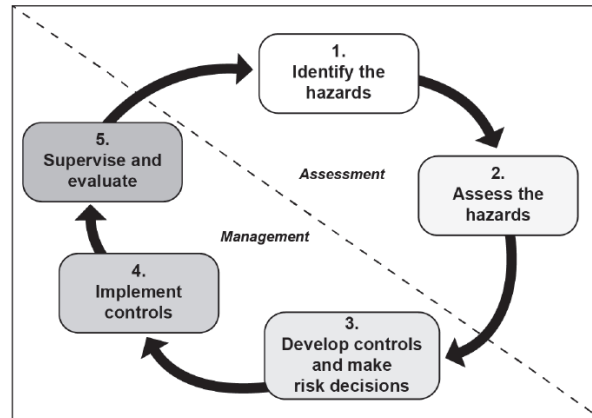


Figure 1-2. Assessment steps and management steps

Identifying the hazards focuses on listing out the threats in the environment that can cause harm. Assessments of the hazards is the next step and is again outlined in ATP 5-19.<sup>2</sup>

**Table 1-1. Risk assessment matrix**

Risk Assessment Matrix		Probability (expected frequency)				
		Frequent: Continuous, regular, or inevitable occurrences	Likely: Several or numerous occurrences	Occasional: Sporadic or intermittent occurrences	Seldom: Infrequent occurrences	Unlikely: Possible occurrences but improbable
Severity (expected consequence)		A	B	C	D	E
Catastrophic: Mission failure, unit readiness eliminated; death, unacceptable loss or damage	I	EH	EH	H	H	M
Critical: Significantly degraded unit readiness or mission capability; severe injury, illness, loss or damage	II	EH	H	H	M	L
Moderate: Somewhat degraded unit readiness or mission capability; minor injury, illness, loss, or damage	III	H	M	M	L	L
Negligible: Little or no impact to unit readiness or mission capability; minimal injury, loss, or damage	IV	M	L	L	L	L
Legend: EH - Extremely High Risk H - High Risk M - Medium Risk L - Low Risk						

The Army model assesses risk based on two criteria: probability of occurrence and the severity if the event occurs. Using Table 1.1, risk assessment matrix, staffs can qualitatively assess the initial risk inherent to a specific hazard. Following this assessment, ATP 5-19 instructs controls be put in place. Educational, physical and hazard elimination controls are the three key areas outlined.

- 1) Educational controls inform that the hazard exists and can involve training to mitigate.
- 2) Physical controls block access to a hazard.

- 3) Hazard elimination controls use engineering methods, administrative and personal protective equipment to mitigate a hazard.

Following this assessment process, commanders implement controls and supervise/assess for effectiveness.<sup>3</sup> While this model has merit, it is clearly an accidental risk mitigation model, and its application becomes nebulous at higher echelons. Let us examine two examples to illustrate this assertion.

**A Soldier’s Road Trip Home.**

In this first example, we use a scenario familiar to all leaders in the Army: A Soldier conducting vacation road travel for the holidays. In the associated risk assessment, Soldier Holiday Risk Assessment Matrix, we outline the likely hazards as indicated in the “Hazards” column. Using Table 1.1 in ATP 5-19 and the subsequent definitions, we assess that the risk is Seldom and Critical for “Vehicle Accident” and occasional and moderate for both “Vehicle Breakdown” and “Inclement Weather.” The initial risk is “Moderate.”<sup>4</sup> We then apply educational, administrative and hazard elimination controls to mitigate the risk. We implement these controls via the chain of command and are left with an overall residual risk of “Low.” This informs the commander of events the Soldier may encounter and outlines a plan to follow, in the event a hazard is encountered. While one can argue the subjective nature of this assessment, the model holds up well when applied to an individual Soldier. Indeed, the model holds true when applied at the squad to company level. However, as we transition higher in echelon, the model does not properly inform.<sup>5</sup>

**Soldier Holiday Risk Assessment Matrix**

<b>Driving Home for Holidiays (600 miles one way)</b>				
<b>HAZARD</b>	<b>Initial Risk Level</b>	<b>Control</b>	<b>How to Implement</b>	<b>Residual Risk Level</b>
Vehicle Accident	M	Rest Breaks / Two Day Trip / 8 Hours Sleep / No alcohol	Commander/NCO Briefing and Supervision	L
Vehicle Break Down	M	Vehicle Inspection / Cell Phone on hand / Hotel funds	Commander/NCO Briefing and Supervision	L
Inclement Weather	M	Assess weather / Plan for emergency hotel / blanket, water, food in car	Commander/NCO Briefing and Supervision	L

**Division Wet Gap Crossing in LSCO.**

Let us now apply this model to a division conducting LSCO. This example applies the same techniques used with our Soldier driving home for the holiday. We identify key hazards we assess will be present during our attack in the associated risk matrix, Division Wet Gap Crossing Risk Assessment Matrix. We assess the hazard from “enemy rotary wing” and “enemy artillery” to be frequent and catastrophic and the “chemical attack” to be likely and catastrophic. The initial risk is “Extremely High.” We then apply administrative and hazard response controls through the orders process, leaving us with a residual risk of “High.”

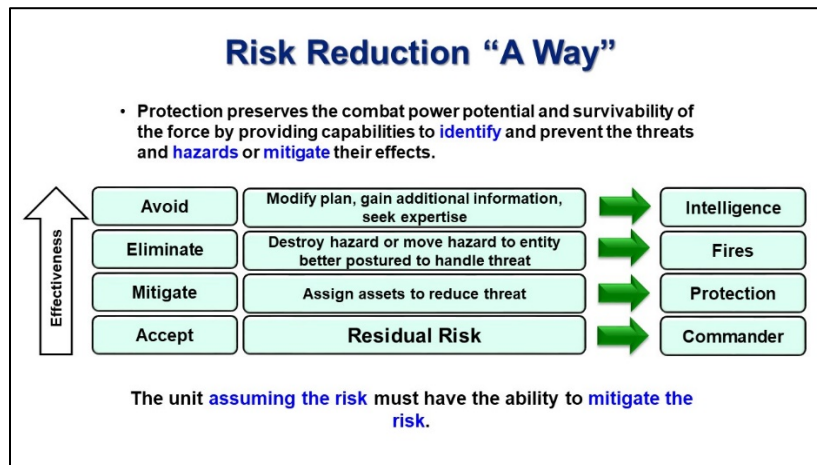
### Division Wet Gap Crossing Risk Assessment Matrix

Offensive Operations				
HAZARD	Initial Risk Level	Control	How to Implement	Residual Risk Level
Enemy Rotary Wing Aircraft	EH	Avengers task organized to BCTs	Orders Process	H
Chemical Attack at the Gap	EH	CBRN Recon, Decon units task organized to BCTs, PPE	Orders Process	H
Enemy Artillery	EH	Survivability Moves, Construct survivability positions, deception ops	Orders Process	H

The risk assessment process is a tool that should inform the commander’s decisions. One must now ask the question, “What does this model tell the commander?” The commander has, in most cases, over twenty-five years of military experience, yet we effectively just told him that, “War is dangerous.” This model does not inform the commander of risk in time, space and purpose, nor does it inform his decisions.

#### A Paradigm Change – A Different Way of Looking at Risk.

To preserve limited combat power, the staff should think differently as to how it addressed battlefield hazards. The Project Management Institute presents a risk mitigation paradigm suitable for division and corps level operations.<sup>6</sup> Risk should first be avoided, then eliminated, and finally mitigated before the commander accepts the residual risk. The effectiveness of each level of risk management decreases as more friendly assets are dedicated to the hazard. Too often staffs seek to mitigate hazards before trying to avoid or eliminate the hazard.



Using this model, each WfF is integrated into the risk management process. The intelligence WfF helps the commander to avoid risk. It informs him of where the enemy is strong and weak, or where critical battlefield systems are arrayed. The fires WfF eliminates systems that can destroy friendly combat power. Fires can directly impact the question, “What is killing us?” and reduce overall hazards to the

force. The protection WfF arrays combat power to assist in survivability. Notice though, mitigation occurs as a step in the risk reduction process. We assign combat power as a last resort, allowing the Commander to focus his assets at the decisive point. Finally, the commander accepts residual risk. The commander owns risk for his unit, but the staff must manage it. As with any criticism of an existing paradigm, one must offer a solution or better process. The remainder of this writing will focus on application of this improved model to drive commander decision-making.

**Sun Tzu - “If you know the enemy and know yourself, you need not fear the result of a hundred battles.” – We have problems with the latter.**

The staff exists to inform the commander and assist him in making decisions. The information he deems necessary to make informed decisions is codified in the commander’s critical information requirements (CCIR). This CCIR is broken down into two subsets. The first is priority intelligence requirements (PIR), or what we need to know about the enemy. The other half is friendly forces information requirements (FFIR), or what we need to know about ourselves. Through intelligence preparation of the battlefield (IPB), the staff determines enemy likely actions, locations and strength. From this, the staff develops a collection plan, assigning named areas of interest (NAIs) which link directly to PIR. When one observes a division or corps PIR, they generally are listed out in great detail. They are phased, have assets assigned to collect, and are linked to commander’s decision points. This is not shocking, as tactical intelligence efforts focus on this. They also have the doctrine to drive the cycle. In fact, Army Technical Publication (ATP) 2-01 specifically addresses how to develop PIR.

FFIR are another matter. Often staffs do not define who is responsible for developing and tracking FFIR. Is it the role of the protection staff or does responsibility reside in the operations section? They are typically not phased, do not drive decisions, and unlike PIR, are not depicted on the decision support matrix. In short, FFIR generally do not inform the commander. Take a moment and develop FFIR for a division attack in LSCO. Think about what the commander needs to know about his forces, how to maintain combat power and how it would impact the mission based on your experience. It is likely there are at least two FFIR in the list below that you developed in just these few moments:

1. Loss of an Avenger platoon.
2. Loss of a counter-fire radar
3. Loss of an Apache platoon or above
4. Loss of a CBRN reconnaissance vehicle.

Could one do the same with PIR? How can one guess the FFIR so accurately? The simple fact is we are products of our development. We list these FFIR out because we learned them from our S3 or executive officer that trained us as junior officers. He learned his FFIR development in the same way. While these systems are surely important to the Commander, does their loss really inform him of anything? Again, the commander likely has over twenty-five years of service. He is well aware that the loss of an Avenger platoon is bad. Does this FFIR help inform his decision-making? The answer is no. So how do we develop effective FFIR?

**Risk Management During MDMP – The Key to Informed FFIR.**

Effective risk management is key to developing updated, phased and living FFIR. Risk management must begin during mission analysis. It cannot be an afterthought. The process below lays out step by step an effective technique of turning risk modeling into actionable decision-informing FFIR. It will assess risk for division offensive operations in LSCO.

## 1. Mission Analysis.

The staff must first assign a WfF the responsibility of managing the risk matrix. By doctrine, the protection WfF fills this role, however, as long as one party is deemed responsible, the process will be successful. Here, the protection WfF will be utilized as the responsible party for the risk matrix. Risk should be included on all WfF running estimates. During mission analysis, the protection cell captures any risk the WfF identify on a matrix similar to the one below. Notice at this point, there is no risk assessment. We are simply identifying hazards in the operational environment. We note its impact on the force, but at this phase of planning, these impacts are broad. We also capture what WfF identified the risk. They will own the risk for the duration of the operations. The purpose of risk management in the mission analysis portion of MDMP is to brainstorm where the staff envisions threats. The staff does not assign assets to “mitigate” the threat.

**Mission Analysis Risk Matrix**

Mission Analysis - Division Offensive Operations in Atropia								
WfF Risk TGT	HAZARD	Impact	RISK TO MISSION			RISK TO FORCE		
Prot/M2	Rotary Wing Attack	TEMPO	Green	Yellow	Red	Green	Yellow	Red
Fires	Enemy Indirect Fires	TEMPO/ OPERATIONAL REACH	Green	Yellow	Red	Green	Yellow	Red
Prot/M2	CM Attack	TEMPO/ OPERATIONAL REACH/BASING - All reduced	Green	Yellow	Red	Green	Yellow	Red
MC/Prot	Cyber Attack	OPERATIONAL REACH	Green	Yellow	Red	Green	Yellow	Red
M2	Enemy unconventional attacks in support areas	TEMPO/ OPERATIONAL REACH/BASING	Green	Yellow	Red	Green	Yellow	Red

## 2. Course of Action Development.

Course of action (COA) development builds on mission analysis. During this part of planning, the staff develops broad concepts that are phased from initiation of movement, until achievement of the final objective. We now expand on the risk model started during mission analysis. Notice the number of columns increases. A column for operational phase is now included. By this phase of planning, the staff should have a fair idea of when in time the division or corps will encounter a certain hazard. Also included is a probability column, showing a subjective assessment of the likelihood of the event occurring. Additionally, the staff can begin to formulate how the hazard will be reduced. Will it be avoided, eliminated, mitigated, or a combination of all three? Additional hazards will also likely become evident as planning progresses. This should be noted on the risk matrix and the date the hazard is identified as captured, as in the example in the first row of the main effort BCT falling below 65%. Quantitative data like these will often come from the operations research/systems analysis (ORSA) and will be extremely useful during course of action analysis.

## COA Development Risk Matrix

Course of Action Development - Division Offensive Operations in Atropia						Method								
Wf Risk TGT	Operation Phase	Date/Time Risk Identified	HAZARD	Impact	Probability	Avoid	Eliminate	Mitigate	RISK TO MISSION			RISK TO FORCE		
C2	IIIb - Gap Crossing	3-Jun-19	ME BCT Reduced to 65% Combat Power before crossing	Tempo/ Casualties	High - Enemy COF not favorable		X	X	Green	Yellow	Red	Green	Yellow	Red
Fires	IIIb - Gap Crossing	3-Jun-19	CL V exceeds CSR to shape follow-on objective	Tempo / Operationa Reach	Medium	X		X	Green	Yellow	Red	Green	Yellow	Red
Prot/M2	IIIb - Gap Crossing	1-May-19	Rotary Wing Attack along Northern Flank	Flank attack - Pot. Fix in north	High - RW Assets at 85%		X	X	Green	Yellow	Red	Green	Yellow	Red
Fires	IIIa-IIIc	1-May-19	Enemy Indirect Fires	Tempo / Operationa Reach	Medium - Enemy has overmatch in range	X	X	X	Green	Yellow	Red	Green	Yellow	Red
Prot	IIIb - Gap Crossing	1-May-19	CM Attack	TEMPO/OP REACH/Basing - All reduced	Likely - Already Used - 90%			X	Green	Yellow	Red	Green	Yellow	Red
C2/Prot	IIIa-IIIc	1-May-19	Cyber Attack	OP Reach	Medium - 40%	X		X	Green	Yellow	Red	Green	Yellow	Red
C2	IIIc	1-May-19	Enemy unconventional attacks in support areas	TEMPO/OP REACH/Basing	Likely - Already Used - 90%		X	X	Green	Yellow	Red	Green	Yellow	Red

The WfF chiefs should examine the risk matrix and determine how risks incurred from one function may impact another. Using the example of the main effort BCT at 65% combat power, sustainment can infer that there is a significant risk for a mass casualty event and task organize to mitigate this hazard.

### 3. Course of Action Analysis (Wargaming)

By the time the staff reaches this point in planning, the risk matrix should be specific. The WfF have determined second order effects and are now prepared to plan in detail. Notice the changes in the wargaming risk matrix. It is now detailed by phase. Some hazards are present throughout the operation however, we desire to see how they will affect the mission during critical events. We also now have included risk to mission and risk to force. The intent here is to show how our controls affect risk and to show where the division will still incur significant risk. In this case, Phase IIIb the Wet Gap Crossing, is a key event for the division. Take note the focus is now on actual units that the staff assigned to missions.

## COA Analysis Risk Matrix

Course of Action Analysis - Division Offensive Operations in Atropia						Method								
W/F Risk TGT	Operation Phase	Date/Time Risk Identified	HAZARD	Impact	Probability	Avoid	Eliminate	Mitigate	Supporting Task Required	Asset Assigned	RISK TO MISSION		RISK TO FORCE	
C2	IIIb - Gap Crossing	3-Jan-19	1/1 CD BCT Reduced to 65% Combat Power at OBJ GEORGE	Celmination/Decision Point	High - Enemy COF not favorable		X	X	NAI1 OBJ GEORGE - Enemy Strength/NAI12 - OBJ SMITH - 465 TK BDE Mt					
Sest	IIIb - Gap Crossing	4-Jan-19	1/1 BCT Mass Casualty	Op Reach/Casualties	High - Enemy COF not favorable			X	CASEVAC	2 MEB - Medical Assets - Move to FLEs				
Fires	IIIb - Gap Crossing	1-May-19	DIVARTY cannot range to FSCL	Cannot engage HPTL	Medium - Enemy has overmatch in range	X		X	Coord. With Corps High in order of march / PAA: est. to shape OBJ SMITH	34 Art. BN				
Fires	IIIb - Gap Crossing	3-Jan-19	DIVARTY CSR unable to shape follow-on Objective	Tempo/Op-Reach	Medium	X		X	Modify CSR					
C2	IIIb - Gap Crossing	6-Jan-19	DTAC does not have JAGIC capability to clear at gap crossing	Cannot Clear air	High - Enemy COF not favorable		X	X	Place JAGIC in DIVARTY	JAGIC				
Prot/M2	IIIb - Gap Crossing	1-May-19	Rotary Wing Attack along 2/1 CD Flank	Flank attack - Pot. Fix in north	High - RW Assets at 85%		X	X	Defeat Enemy Rot. Wing along northern air ave.	2/3/6 ADA PLT; 3/3/6 ADA PLT				
Fires	IIIa-IIIc	1-May-19	Enemy Indirect Fires mass on 1/1 CD at gap crossing	Celmination	Medium - Enemy has overmatch in range	X	X	X	Joint Fires (Blue Air) : Increase crossing speed	1/5/18 MRBC; 5/8/14 MRBC				
Prot	IIIb - Gap Crossing	1-May-19	PCHEM Attack on 1/1 CD at gap crossing	TEMPO/OP REACH/Basing - All reduced	Likely - Already Used - 90%			X	CBRN Rte Recon; CBRN Deco	1/2/8 REC. PL; 3/5/68 Deco Plt				

Risk management in this phase of planning focuses on avoiding, eliminating or mitigating risk. The staff should discuss how to avoid risk. For example, if division artillery (DIVARTY) is not able to range to the fire support coordination line (FSCL), the risk can be avoided by positioning fires assets further ahead in the order of march. Concurrently, the hazard can be eliminated by coordinating with the joint force commander (JFC) to shift the FSCL for this phase of the battle if permissible. Aspects of this may change targeting.

Some hazards cannot be avoided or eliminated. For example, the division does not have the ability to prevent a CBRN attack. However, through task organization and the orders process, it can mitigate the reduction in tempo and casualty threat. By this point, the protection chief now has a good product to facilitate action/reaction planning during key events. The protection chief provides the risk matrix to the chief of staff to inform his adjudication. This can drive additional decisions. For example, if the reduction of 1/1 CD to 65% combat power is deemed too low for adequate correlation of forces, this may drive changes to targeting, or support from higher headquarters. It also informs the development of branch plans. In this case, a branch plan may be the shifting of the main effort during this phase of the operation.

This risk management process provides the science to drive the chief of staff's adjudication during the wargame. Through the adjudication process, the staff may determine that the plan cannot continue unaltered, due to the friendly combat power situation. This may alter the plan considerably. For example, if correlation of forces ratios are not favorable because of friendly combat power losses, targeting may need to focus on a given enemy asset or formation to allow the operation to continue. As always, we hope for the best, but plan for the worst. If the staff determines a friendly combat power loss that presents significant risk to the mission or force, a decision point is reached and a branch plan is developed to meet the commander's intent. These FFIR driven Decision Points are captured on the decision support matrix (DSM). The risk management process does not end here. It continues to develop with staff sections maintaining risk as part of their running estimate. The protection working group serves as an excellent venue to consolidate staff risk assessment and briefly focus the staff on, "What is killing us?" We now have the tools we need to inform the commander of risk and actions he may need to take.



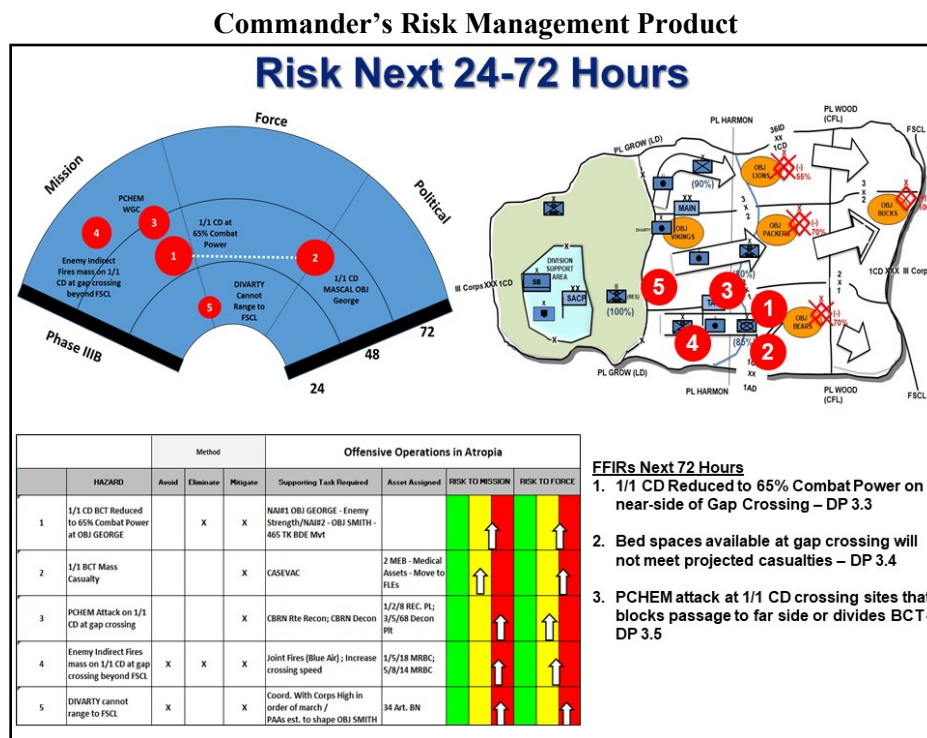
**The “Field Grade Product” vs the “Commanding General’s Product” – FFIR Informing the CG’s Decisions.**

At this point in the planning process, we identified hazards starting at the receipt of mission. We cross-functionally screened those identified risks and developed second and third order effects. Indeed, many of these second and third order effects became hazards added to the risk matrix. We determined the best, most efficient way to control a risk through avoidance, elimination, or mitigation. Finally, we presented an updated risk matrix to the chief of staff to provide the science to his art of adjudication. We developed decision points and these are now included in the decision support matrix.

We must now present risk to the commander in a usable format. The risk matrix we developed is the “field grade product.” This product is detailed and is in constant refinement. However, if one handed this product off to the commanding general, one will likely not last long on the staff. That said, time and time again, commanding general briefings contain the “field grade” risk matrix. No wonder risk is glanced over. The risk matrix does not help the commanding general to visualize, describe and direct the battle. We must present risk to the Commander in a way that helps him see risk in time, space and purpose.

Now is the time when we must focus in on key risks. The risk matrix is likely fairly large at this point. The staff must reduce these down to a few key risks over the next few days and should brief these at the daily battle update briefing. Key risks to brief the commander include:

1. Risk with a decision point linked to it should be briefed.
2. Risk that the division or corps cannot directly influence.
3. Risk that can cause culmination
4. Risk with political consequences.



These should be listed in a reduced form of the risk matrix. Remove all additional information and express the risk in terms of risk to mission and risk to force. Remember that this is mainly a

qualitative assessment, so use the staff's expert judgement to refine the product. Express how the staff recommends to control the risk by avoidance, elimination, or mitigation. In cases where the division cannot directly influence the hazard, use the term "transfer" to indicate that coordination with a higher echelon is necessary. In this example, a hazard is attrition of 1/1 CD prior to the gap crossing from fires beyond the FSCL. This will require coordination with Corps to transfer the risk. Corps is postured to control the hazard which is critical for the operation.

Place an updated common operating picture (COP) on the slide and place a symbol where the staff believes the division will encounter the risk. This helps the commander visualize where he will encounter mission hazards. This is not a decision support product, so be careful to not confuse the two. Remember that not every risk will not have a decision point associated with it, but many will.

To complete the commander's product, use a fan to show when in time the division will encounter the risk. Lay it out in terms of risk to mission, risk to force and political risk. Some risk elements will be all three. Use your assessment to determine the best fit. Linkages among hazards should also be made. In this example, 1/1CD reduction in combat power to 65% will have a secondary risk associated with it in the form of a mass casualty event. We have presented hazards to the commander in time, space and purpose. He can see how his force may be impacted. He now can "Know Himself."

The final step in this process is to inform the commander of his FFIR and associated decision points. We express the FFIR in detailed form that the staff can action. The FFIR are a refined statement that link risk to combat power losses, which in turn will require a decision. In this phase of planning, we take the risk that requires a decision and present it in a concise statement. During our wargaming, we identified and in some cases are already developing, branch plans to execute when an FFIR is triggered. The commander now knows what friendly combat power decisions will need to be made to meet his intent. We now have provided the "Then" statement to the division or corps decision support matrix, with the homework to back up our assessment. This method of risk management driving FFIR and associated decision points will better inform the commander, enhance mission accomplishment, and preserve the valuable lives of our Soldiers.

Risk management must move beyond identifying hazards, applying mitigation, and accepting residual risk. A whole of staff, integrated risk management approach to identifying, avoiding, eliminating and mitigating hazards, is crucial to correctly defining the operational environment as it changes during LSCO. Capturing and managing risk for the whole staff should start with mission analysis, be tested through harsh adjudication during Wargaming and maintained as part of the staff running estimate. The staff estimates should be consolidated and discussed during the protection working group to further refine upcoming hazards. Risk should be presented to the commander in time, space and purpose to assist him in visualizing battlefield hazards and make decisions. Division and corps staffs must improve upon current risk management models/methods to reduce risk to mission and force to the minimum residual level that allow the commander to preserve and maximize effects of his combat power.

## References

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<sup>1</sup> Department of the Army. *Protection*, Army Doctrine Publication (ADP) 3-37. Washington, DC: Department of the Army, 2019. [https://armypubs.army.mil/ProductMaps/PubForm/Details.aspx?PUB\\_ID=1007354](https://armypubs.army.mil/ProductMaps/PubForm/Details.aspx?PUB_ID=1007354). Current doctrine uses the overarching term of Protection Priority List (PPL).

<sup>2</sup> Department of the Army. *Risk Management*, Army Technical Publication (ATP) 5-19, Washington, DC: Department of the Army, 2014, [https://armypubs.army.mil/ProductMaps/PubForm/Details.aspx?PUB\\_ID=104084](https://armypubs.army.mil/ProductMaps/PubForm/Details.aspx?PUB_ID=104084). 1-4.

<sup>3</sup> Ibid, 1-6.

<sup>4</sup> Ibid, 1-6 – 1-10.

<sup>5</sup> Ibid, 1-7

<sup>6</sup> Hillson, D. Managing overall project risk. Paper presented at PMI® Global Congress 2014—EMEA, Dubai, United Arab Emirates. Newtown Square, PA: Project Management Institute. 2014. <https://www.pmi.org/learning/library/overall-project-risk-assessment-models-1386>.