

# Rethinking Aspects of Design and the Military Decision-Making Process

## *Lessons-Learned and Recommendations from a Command and General Staff College Student Exchange to the German Führungsakademie*

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Militaries around the world have a number of different planning processes, each with their own advantages and disadvantages. These processes provide a common language and shared understanding for leaders, facilitating efficient and effective planning.<sup>1</sup> This affords significant advantages for new and experienced staffs alike.

The U.S. Army captures its planning processes in two manuals: Army Technical Publication (ATP) 5-0.1, *Army Design Methodology* (ADM), and Field Manual (FM) 6-0, *Commander and Staff Organization and Operations*, which covers the military decision-making process (MDMP) and troop-leading procedures. These manuals describe proven processes and methods for staffs to analyze and plan operations. Unfortunately, many staffs apply these planning processes in isolation, neglecting to integrate other important planning concepts. In other cases, planning can create gaps that hinder transitions such as that between conceptual and detailed planning (in other words, ADM and MDMP).

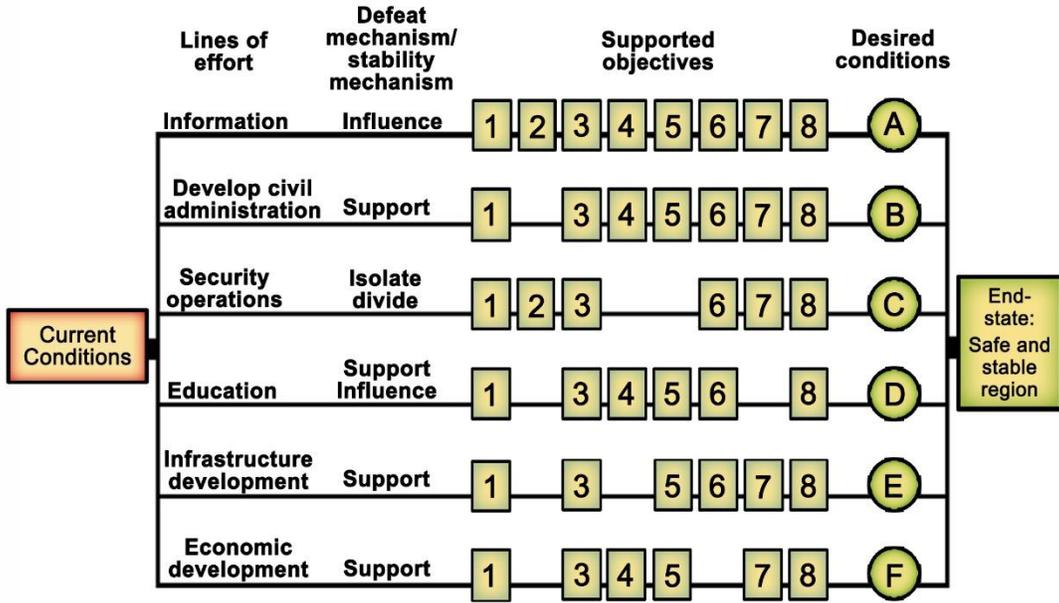
This article will describe four techniques used during Exercise Determined Effort, an annual U.S.-German planning exercise, which can be used during ADM and MDMP to integrate existing doctrinal concepts and enable more effective planning.<sup>2</sup> These techniques focus on the following four areas, which will be described in detail in subsequent sections:

- When developing an operational approach, staffs should consider including decision points and branch plans to enable flexibility during execution.
- To enable the transition from conceptual to detailed planning, staffs should develop a task-and-effects matrix to ensure courses of action (CoAs) account for all aspects of the operational approach.
- During mission analysis, staffs should conduct factor analysis to enable collaboration and develop “so what” and “therefore” conclusions that enable CoA development.
- During the CoA decision brief, each staff section should be prepared to present the advantages and disadvantages of the CoAs based on its warfighting function (WfF) or expertise.

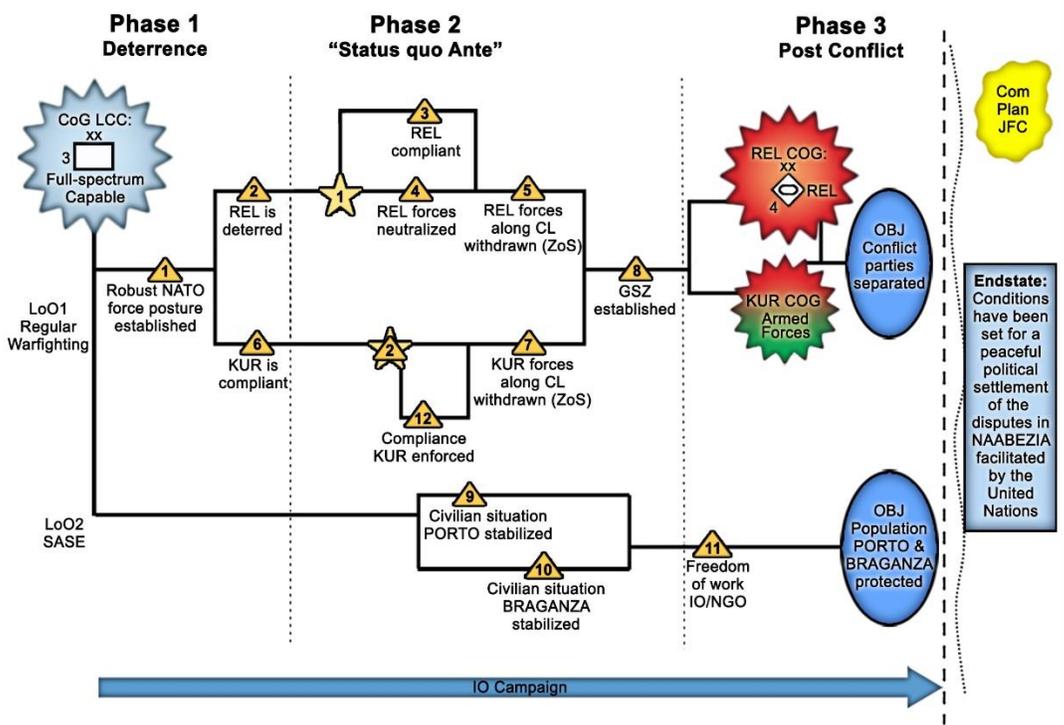
### **Branch plans, decision points**

An operational approach is “a description of the broad actions the force must take to transform the current conditions into those desired at the endstate.” It is not a detailed CoA, which is developed during MDMP, but rather a conceptual description of “what needs to be done,” usually described using a visual model and a supporting narrative.<sup>3</sup> Most examples of operational approaches from doctrine and the operational force are very similar: linear models depicting a series of objectives arrayed along lines of operation (LoOs) or effort (LoEs) (Figure 1). The development of these models is useful for planning against ill-structured problems and focusing the staff and subordinate units’ planning efforts. However, they have a tendency to oversimplify future actions because they rarely account for variables or planning contingencies.

Given the current doctrinal model and usual time-constrained environment, it is not surprising that leaders prioritize developing one well-detailed plan over one that includes multiple branches. However, a LoO without any decision points or branch plans represents an inflexible plan. Once an operation begins, the enemy often acts in a manner different from its anticipated CoA, which requires leaders to adapt their plans in real time.<sup>4</sup> This is impossible to avoid, but planners can enable operational agility by anticipating enemy options, capturing these as decision points and developing conceptual branch plans. Depending on time constraints, staffs might not be able to develop the details of its decision points and branch plans; however, by anticipating and thinking through alternatives – even briefly – they will ensure they are better prepared.



- 1 Positively influence people
  - 2 Trained and professional security force
  - 3 Civil security operations
  - 4 Literacy rate improved
  - 5 Population has access to essential services
  - 6 Qualified and trained civil service
  - 7 Diminish illegal networks
  - 8 Revenues increased
- A Populace regularly, readily interacts with provincial government
  - B Civil servants maintaining regular work hours and actively pursuing their responsibilities
  - C Available and trained security forces employed effectively by the provincial government
  - D School attendance increased
  - E Improved conditions for basic services
  - F Increased investment / projects in the provinces



**Figure 1. Left: Adapted from ATP 5-0.1's Figure 5-3, an operational approach is depicted that linearly links LoOs or LoEs. Right: The operational framework developed during Exercise Determined Effort has two LoOs (regular warfighting and a safe and secure environment), both of which include decision points and branch plans.**

Exercise Determined Effort planners attempted to balance the aforementioned challenges by developing alternative enemy CoAs and accounting for them with friendly decision points and conceptual branch plans in their operational approach (Figure 1).<sup>5</sup> Unfortunately, Determined Effort was only a planning exercise, so this plan was not executed or simulated to test the effectiveness of these efforts. However, the authors hypothesize that units can enhance their adaptability by thinking through these aspects and including them within their operational approach. Even if staffs do not develop the full details of their branch plans, the thought process and collaborative dialogue can stimulate the seeds of adaptation. As Dwight D. Eisenhower famously stated, "Plans are worthless, but planning is everything."<sup>6</sup> In this regard, leaders should consider not only the details and depth of their planning efforts but also the breadth.

To help planners visualize operational planning in breadth, ATP 5-0.1 should add an example of an operational approach that includes decision points and branch plans. This example should be displayed alongside the current linear model to provide planners another option depending on their specific situation. Not all plans are going to require branches, and in some cases, the staff may not have enough time to create a branched operational approach. However, presenting this option will provide a model for planners to create more adaptive plans. From there, it will be up to leaders to use their judgment as to which model to use based on their specific situation and planning timeline.

## Linking tasks, effects

Developing a CoA from an operational approach can be a difficult task. The seemingly simple task of translating the operational approach's broad objectives into detailed tasks can be challenging. Also, the CoA-development team may or may not include planners who were involved with developing the operational approach. In either case, CoA planners may find themselves unsure about certain aspects of the operational approach. ATP 5-0.1 acknowledges some of the challenges of transitioning from conceptual planning to detailed planning, stating that "[b]riefing the results of ADM and handing over associated products to another planning team is not an effective approach. Often the same planning team that led the design effort leads the staff through the MDMP. If not, key members of the planning team are part of the core element of the planning team performing the MDMP."<sup>7</sup>

Although current Army doctrine does not offer any specific solutions, one way to bridge the potential gap between conceptual and detailed planning is by developing and communicating the desired effects of each objective.

During Exercise Determined Effort, the staff employed a combination of doctrinal and procedural techniques to enable the transition from conceptual to detailed planning. Per the Comprehensive Operations Planning Directive (COPD), the design team developed a task-and-effects matrix that captured the desired effects and tasks for each objective on each LoO and LoE.<sup>8</sup> Also, the chief of staff integrated design-team members into each CoA-development group to enable continuity in planning and ensure the group understood the operational approach. These doctrinal and procedural steps ensured effects were translated between planning phases and facilitated collaboration across staff sections.

The staff developed the task-and-effects matrix during conceptual planning to capture the results of the COPD's planning process, which began with determining the desired endstate and backward planning objectives, decisive conditions, effects and finally, tasks (Figure 2).<sup>9</sup> The completed task-and-effects matrix (Table 1) and the operational approach (Figure 1) subsequently served as a starting point for each CoA planning team. As the CoA planners developed their detailed plans, they referred to these documents to ensure their plan accomplished all the desired effects and stayed within the parameters of the operational approach.

The COPD conceptual planning process is mirrored in Joint Publication (JP) 5-0's (*Joint Operational Planning*) description of the elements of operational design (objectives, effects and tasks), but Determined Effort planners went a step further by linking each task and effect to specific objectives (Table 1).<sup>10</sup> Looking at Army doctrine, ATP 5-0.1 does not include developing either effects or tasks during conceptual planning.<sup>11</sup> This leaves Army planners potentially susceptible to the aforementioned gap in understanding between the broad objectives developed during conceptual planning and specific tasks developed during detailed planning.

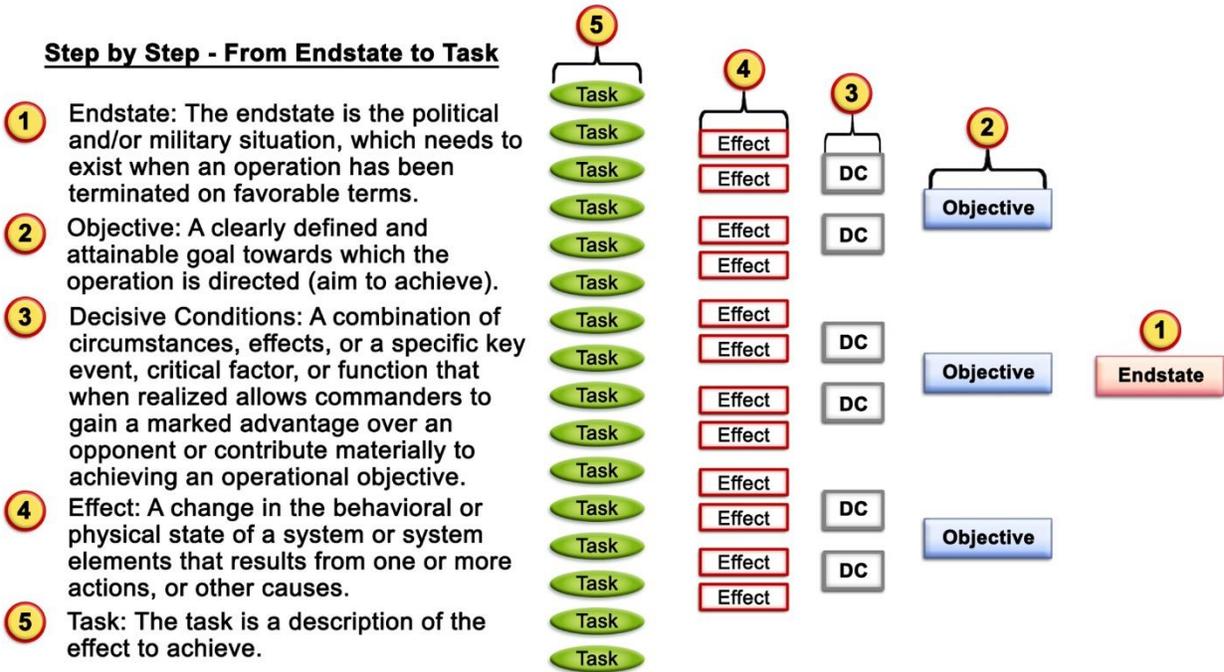


Figure 2. Tasks are linked to effects and decisive conditions that lead to the desired endstate. (Adapted from Figure 13, NATO standing operating instructions COPD)

The second step the Determined Effort staff took to facilitate the transition from conceptual to detailed planning was to integrate members from the design team into the CoA-development teams. This was key in facilitating shared understanding so that the staff did not “stovepipe” the design and CoA-planning processes. Representatives from the design team were integrated into the two CoA planning teams, and the rest of the design team remained available to answer questions, discuss desired effects and critique the CoA as it was being developed. It is important for leaders to consider how design planners contribute throughout the planning process to ensure the integrity of the plan.

Current doctrine does not provide any tools to facilitate the transition from conceptual to detailed planning, so ATP 5-0.1 should add an example of a task-and-effects matrix to fill this gap. A task-and-effects matrix is an outstanding tool to ensure detailed tasks are nested with the desired effects from the operational approach. Also, this matrix is an easy way to communicate these linkages to detailed planners, who will be charged with developing CoAs.

Finally, planners should heed the ATP’s advice to integrate members from the design team into CoA-development teams. These doctrinal and procedural steps will go a long way toward facilitating the transition from conceptual to detailed planning.

### Factor analysis, running estimates

FM 6-0 states that mission analysis is the most important step of MDMP. During mission analysis, staff officers must analyze and share information from across the mission variables to ensure their effects are understood in terms of current and future missions. Staffs often struggle with mission analysis and running estimates because they struggle to identify and analyze the most pertinent information.

ATP 5-0.1 lists several cognitive biases that staffs might face during this process. One of the most significant is the anchoring bias, which is explained as the “tendency for humans to use initial estimates or information as a starting point for adjustment. Even though additional information invalidates the initial estimate, humans unconsciously use the initial estimate as a starting point when making subsequent judgments.”<sup>12</sup> Understanding this bias is important during mission analysis because a staff must be cognizant of how existing running estimates and formats affect its analysis.

No.	Decisive conditions	Effect	Action
1	NATO in AoO	1.1 NRF FOC 1.2 1 <sup>st</sup> (BER) Armoured Div FOC 1.3 LCC FOC	1.1.1 Early deployment of NRF forces NLT 2 Aug 20XX 1.1.2 Conduct RSOI 1.2.1. Early detachment of LCC LNO to 1 <sup>st</sup> (BER) Div 1.2.1 Conduct Joint exercises in JoA 1.3.1 Deployment of OLRT 1.3.2 Deployment of ICE 1.3.3 Buildup of LCC complete
2	KUR CoG retired	2.1 KUR armed forces transition out of PORTO area 2.2 KUR security forces transition out of PORTO area 2.3 LCC security forces in place 2.4 Civilian support for NATO ops 2.5 Establish CIMIC IVO PORTO	2.1.1 Establish division HQ in KUR 2.1.2 Establish LNO to KUR land forces 2.1.3 Coordinate withdrawal of armed forces 2.2.1 Establish LNO to KUR land forces 2.2.2 Identify locations of all forces being replaced 2.2.3 Coordinate withdrawal of security forces 2.3.1 KLE with PORTO authorities 2.4.1 IO campaign to convey that NAABFOR will secure the PORTO area 2.5.1 Establish CIMIC 2.5.2 Establish CRITIS 2.5.3 Establish CIMIC LNOs
3	FoM established	3.1 No air attacks on friendly forces 3.2 DPRE movements coordinated through LCC HQ 3.3 Facilitate POW 3.4 No IDF and AD attacks 3.5 NAABFOR movements not hampered by civilians	3.1.1 (REL) AHReg neutralized 3.1.2 Control airspace by ACC 3.1.3 Neutralize TBM 3.2.1 Establish DPRE C2 cell 3.3.1 Establish POW camps with capacity of minimum 2K 3.4.1 Neutralize IDF and AD attacks 3.5.1 IO campaign to gain civilian support
4	REL CoG neutralized	4.1 1 <sup>st</sup> Division not able to fight 4.2 5 <sup>th</sup> Division not able to fight 4.3 4 <sup>th</sup> Division not able to fight 4.4 BorderReg 600 not able to defend IRB 4.5 BorderReg 700 not able to defend IRB 4.6 Influence of HoS SAMPAIO decreased 4.7 C2 of REL divisions and brigades disrupted 4.8 COM 1 (REL) division persuaded to cease fighting	4.1.1 IO campaign convince (REL) 1 <sup>st</sup> Division to cease fighting 4.1.2 (REL) 1 <sup>st</sup> Division neutralized 4.2.1 IO campaign convince (REL) 5 <sup>th</sup> Division to cease fighting 4.2.2 (REL) 5 <sup>th</sup> Division neutralized 4.3.1 IO campaign convince (REL) 4 <sup>th</sup> Division to cease fighting 4.3.2 Com (REL) 4 <sup>th</sup> Division neutralized 4.3.3 (REL) 4 <sup>th</sup> Division neutralized 4.4.1 Locate and neutralize CP BorderReg 600 4.5.1 Locate and neutralize CP BorderReg 700 4.6.1 IO campaign to link HoS with UA/UP 4.7.1 Locate and neutralize CP with EW 4.7.1 Locate and destroy CP with ACC 4.8.1 IO campaign convince (REL) 1 <sup>st</sup> Division to cease fighting

**Table 1. An excerpt from the Exercise Determined Effort mission-analysis brief. This task-and-effects matrix ties specific effects and actions (in other words, tasks) to each decisive condition from the operational approach to achieve the desired endstate.**

Planners can easily fall prey to two anchoring biases during mission analysis. The first is based on previous experience. When planning a new mission, staffs sometimes resort to dusting off pre-existing running estimates. This anchors their understanding of the current situation and may lead to false assumptions about the future. The

second is based on planning formats or shells. Planners must constantly assess and review the format of their running estimates because it may anchor thinking, too. FM 6-0 states that staffs and commanders should use running estimates that consider facts, assumptions, friendly-force status, enemy activities and capabilities, civil considerations, conclusions and recommendations.<sup>13</sup> While these categories are useful to frame mission variables, they may constrain planners from thinking outside the box.

The NATO COPD describes a different way to analyze an operational environment called **factor analysis**, which may help planners avoid anchoring biases. The COPD defines a factor as the “circumstances, conditions, facts or other influences that will have an effect on your operation;” similar to what U.S. Army planners might call a mission variable.<sup>14</sup> “The analysis of factors is executed to determine the key significant aspects of time, forces, space and information areas.”<sup>15</sup> Table 2 describes the factor-analysis process, which requires planners to analyze factors to determine significant deductions (“so what”) and conclusions (“therefore”).<sup>16</sup>

Factor	Deduction	Conclusion
Circumstances, conditions, facts or other influences that <b>will</b> have an effect on your operation. <b>Should be written as a full sentence.</b> <b>-A factual statement?</b>	Concise, relevant building blocks of analysis that lead to a logical conclusion. <b>-So what? / which means?</b>	Military requirements or conditions that must be established with respect to time, space and forces <b>-So what can or should be done?</b>
Conclusions/outputs		
<b>A</b> = assumption <b>CAP</b> = capability <b>CCIR</b> = commander’s critical information requirements <b>CL</b> = clarification <b>CNMA</b> = complementary / non-military action <b>CST</b> = constraint <b>CT</b> = critical timing <b>DEC</b> = decision <b>DP</b> = decision point	<b>DC</b> = decisive condition <b>E</b> = effect <b>EEFF</b> = essential element of friendly force <b>FFIR</b> = friendly-force information requirement <b>HNIR</b> = host-nation information requirement <b>OBJ</b> = objective <b>ORJ</b> = organization <b>PG</b> = planning guidance <b>PfS</b> = pre-condition for success	<b>PIR</b> = priority intelligence requirement <b>PM</b> = planning milestone <b>RES</b> = resource <b>REQ</b> = requirement <b>RFI</b> = request for information <b>RI</b> = risk <b>RoE</b> = rule of engagement <b>T</b> = task <b>VUL</b> = vulnerability

**Table 2. Figure 9 from the NATO SOI COPD lists the three steps of factor analysis (identifying factors and developing deductions and conclusions). This process focuses on conclusions, which are categorized for future planning (A through VUL).**

The staff does not categorize its factors until it has determined its conclusions, and the conclusions are the only aspects of factor analysis that the staff presents during mission analysis. Instead of encouraging planners to fill up categories or charts, factor analysis encourages staffs to identify and analyze the most important factors, regardless of category.

See Table 3 for a side-by-side comparison of a typical COPD factor analysis and U.S. Army running estimate.

The key to factor analysis is understanding that running estimates are “thought-engines” rather than simply data points or individual pieces of information. While information is the foundation of analysis, understanding its relevance within the context of the overall situation creates knowledge that is critical during planning. The best way to create this knowledge is usually through collaboration and dialogue across the staff.

To enable planners to develop more useful knowledge and conclusions during mission analysis, FM 6-0 should integrate its description of processing and analyzing information with its discussion of running estimates and mission analysis. The chapter on “managing knowledge and information” emphasizes processing and synthesizing information, but this must be integrated into the chapter on mission analysis as well, which does not currently emphasize “so what” and “therefore” conclusions.<sup>17</sup> The COPD’s presentation of factor analysis is one way of doing this (Table 2). Also, the sections on running estimates and mission analysis should emphasize the importance of collaboration across the staff. Ultimately, the desired output of mission analysis is a clear understanding of the

operational environment and the key factors that will impact the mission. The COPD's factor analysis does an outstanding job of doing this, and our doctrine could be improved to enable the same outcomes.

Key factors and conclusions			M&M (aviation) – LCC Opord 59991-26 Caspian Challenge					
G-2 / G-5	<b>Freedom of maneuver (FoM)</b> is essential for operations  1 REL armed forces, terrorist attacks and refugees might hamper FoM (current negative effect)	T	Monitoring and securing along MSR	<b>Forces/systems available</b> 11D CAB(+) (Annex A): 1-6 Cav (ARS) (24xAH, 12x RQ-7); 1-1 ARB (24xAH); 2-1 GSAB (10xUH, 12xCH, 15xHH medevac); 3-1 AHB (AASLT) 30xUH; F/1 CAB (12x MQ-1C)  82 CAB (II Corps asset): 3x ARS/ARBs; 2x AHBs; GSAB; MQ-1C, RQ-7	<b>Assumptions</b> 11D ISR assets will not be pulled / retained at corps level  82 CAB avn assets will be available for tasking during Phase III  Air Force weather reporting (SWO) attached / assigned to 11D CAB  CAB retains ASB and FSC to establish / maintain up to 5 FARPs	<b>Specified tasks</b> Establish JAGIC to manage / integrate airspace (C-10-4)  Coordinate with 82 CAB for AASLT support NLT 96 hours prior to execution (C-17)  Units must submit ACMRs for all tactical towers, non-directional beacons and FARPs with LCC AE IOT be placed on the ACO ASAP (C-10-5)	<b>Limitations</b> 11D CAB has one air traffic services (ATS) company – can manage only <b>one</b> airfield and <b>two</b> field sites  Seasonal weather (poor visibility) results in moderate risk for avn and potentially limits visual acquisition of targets and hazards	
		CAP	Implement liaison element to IO/NGO					
		T	Use of MSR coordinated, control DPRE movement in close cooperation with IOs/NGOs IOT ensure FoM for NAABFOR at any time during operation					
			REQ	Air transport for urgent logistic support	<b>Planning factors</b> 11D CAB assigned to 41D (Annex A)  82 CAB under II Corps, potential assets available for Phase III (Annex C-16)	11D CAB will be staging at Ganja at start of Phase III  11D CAB will be TAAs / field sites in AO 4	<b>Implied tasks</b> Develop ACMs / ACMRs to assign, integrate airspace with corps G-3(A) and MNFACC  Coordinate / integrate with JAGIC and Fires for FSCMs / ROZ development in AO	<b>Additional capabilities needed</b> If multiple airfields will be operating ISO 11D CAB, additional ATS assets will be required (TAOG, AOBs, USAF)
			REQ	MilEng capabilities to enable fast movement				
		2 Other actors like IO/NGOs will also use MSRs (positive effect)	DC	FoM has to be established for IOs/ NGOs and NAABFOR	<b>Facts</b> ACMRs due 96 hours prior to ACO execution (C-10-4)  Coordination level in the JoA is 3,000' ACL (R/W & F/W) (C-10-5)  Coordinating altitude is 19,000' MSL (C-10-5)	Recommended UAS operating levels will remain in place (C-10-6): Raven, SFC-1,000' AGL; RQ-2B Pioneer, 3,500'-4,500' AGL; RQ-7 Shadow, 5,000'-6,000' AGL (<13,000' MSL); RQ-5 Hunter, 6,500'-7,500' AGL (<13,000' MSL); MQ-1C Gray Eagle, 13,500'-17,000' MSL	BPT attack, air assault, air movement, airborne C2 and medevac ops ISO 41D  ASB and avn bn FSCs establish FARP(s) ISO avn operations	<b>Critical issues for the commander</b> None at this time
			REQ	NATO forces will need a lodgment in KUR from which to sustain operations				
		3 NATO forces will deploy and operate without hindrance in KUR (desired effect)	HNIR	NATO forces will need a port to provide maritime LCC sustainment				
			CAP	KUR military and police will assist NATO forces with both military and peacekeeping missions	41D will control airspace in div AO (AO 4) from div rear boundary to FSCL (SFC to 3,000' AGL) (C-10-3)			

**Table 3. Left, an example of one of the factor-analysis slides from Exercise Determined Effort. Here the main focus is to relay a key aspect of the operation and its correlation to current or desired effects. This is then translated to tasks (T), capabilities (CAP), requirements (REQ), decisive conditions (DC) or host-nation information requirements (HNIR). By cataloguing information this way, information is more concisely packaged and addresses deeper analysis of the problem. Right, an example of a running estimate from Exercise Caspian Challenge at CGSOC. Here planning factors are listed, but there is no linkage of these factors to other facts, assumptions or other aspects of the running estimate. With this method, the running estimate often becomes a mass of information rather than concisely capturing the most pertinent information needed later in planning.**

### All Wffs contribute

According to FM 6-0, CoA comparison is “an objective process to evaluate CoAs independently and against set evaluation criteria approved by the commander and staff. The goal is to identify the strengths and weaknesses of

CoAs, [enabling the selection of] a CoA with the highest probability of success.”<sup>18</sup> FM 6-0 goes on to state that staffs can use any technique to assist the commander’s decision-making, but it describes just one technique: the decision matrix. Many staffs use decision matrices because they enable staffs to quantify their recommendations, thereby attempting to make their process as objective as possible (Table 4). However, FM 6-0 goes on to admit that these quantitative comparisons may be based on subjective criteria and relative values.<sup>19</sup> Instead of attempting to become entirely objective, it might be worth considering alternative ways for the staff to make recommendations to the commander.

Weight <sup>1</sup>	1	2	1	1	2	
Criteria <sup>2</sup>	Simplicity	Maneuver	Fires	Civil control	Mass	Total
CoA						
CoA 1 <sup>3</sup>	2	2 (4)	2	1	1 (2)	8 (11)
CoA 2 <sup>3</sup>	1	1 (2)	1	2	2 (4)	7 (10)
<b>Notes</b>						
<sup>1</sup> The chief of staff (executive officer) may emphasize one or more criteria by assigning weights to them based on a determination of their relative importance. Higher weights correspond to emphasized or more important criteria.						
<sup>2</sup> Criteria are those approved by the commander during the mission-analysis brief.						
<sup>3</sup> CoAs selected for wargaming having rankings assigned with regard to each criterion based on relative advantages and disadvantages of each CoA. For example, when compared for relative simplicity, CoA 2 is simpler than CoA 1 and is therefore ranked 1, with CoA 1 ranked 2.						

**Table 4. Sample decision matrix. Most Army staffs use this matrix to quantitatively present the results of CoA comparison. It is the only technique specifically described in doctrine. (Adapted from Table 9-7, FM 6-0)**

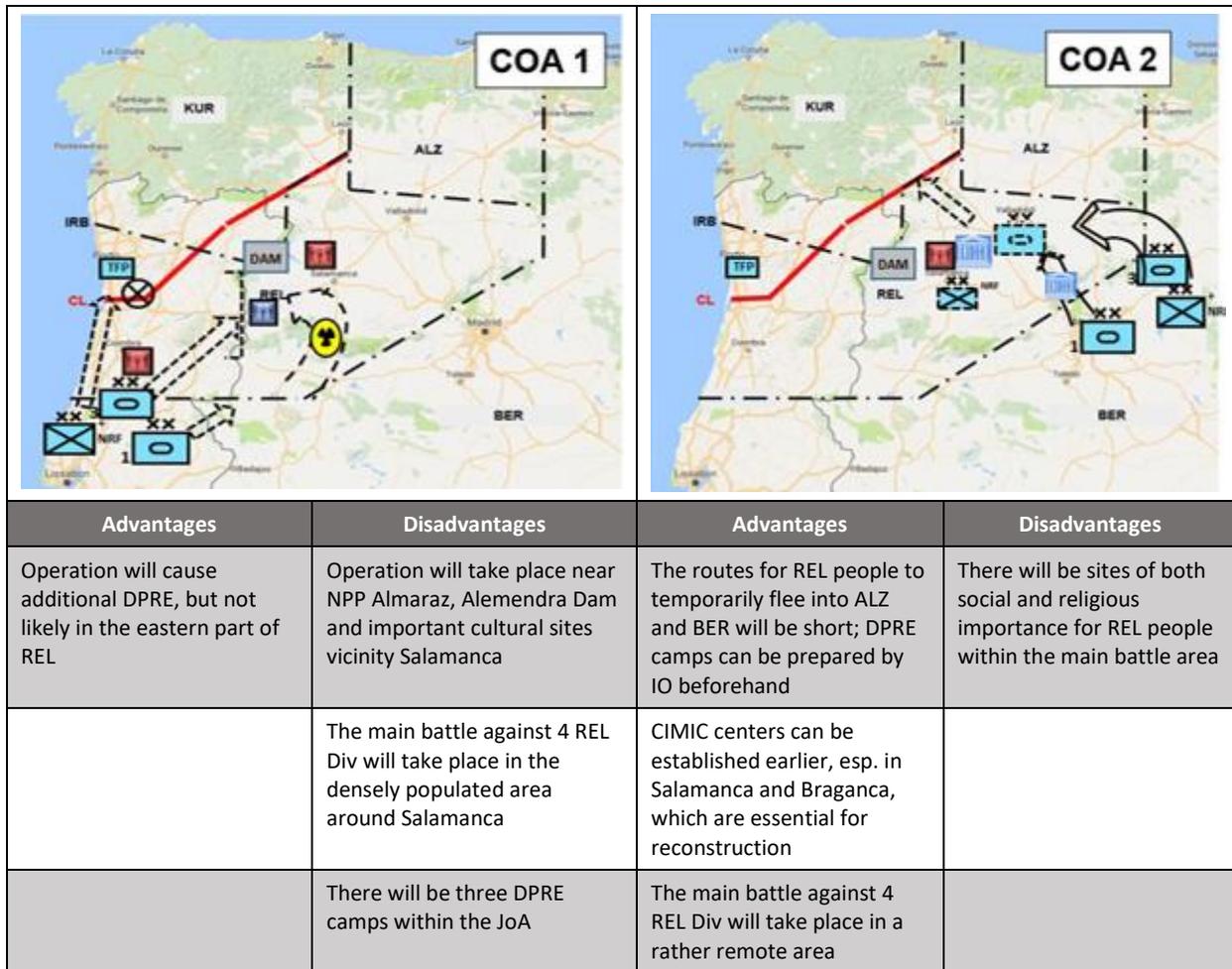
Another challenge is that CoA comparison and decision matrices often focus on evaluation criteria that are maneuver-centric, even though the plan relies on the unit’s ability to sustain itself and interact with civil populations, and other factors as well. Along these lines, FM 6-0 states that CoA comparison starts with staff members evaluating the advantages and disadvantages of each CoA using their expertise; unfortunately, it does not suggest any techniques for each staff section to present this analysis to the commander.<sup>20</sup>

During Determined Effort, each staff section conducted its own advantages-and-disadvantages analysis and presented its findings as part of the CoA decision brief. After each staff section presented its analysis and its recommended CoA, the lead planner presented an overall recommendation. The staff presented this information using a format that included bulletized advantages and disadvantages supported by basic graphics (Figure 3). Although some leaders might be uncomfortable with different staff sections recommending different CoAs, their differences helped the staff highlight some of the risks of each CoA and enabled the commander and staff to consider additional mitigation measures as necessary.<sup>21</sup>

Following the Determined Effort CoA decision brief, the commander said that the most significant piece of information that influenced his CoA selection was the advantage-and-disadvantage analysis briefed by the G-9 (Table 4 and Figure 3). In CoA 1, the attack was going to traverse through a number of moderately populated and sensitive areas, while in CoA 2 the main attack was going to take place in a more sparsely populated area. The commander chose CoA 2 as a way to mitigate civil risk.

This is just one example of the information that the staff can provide to the commander during CoA comparison to ensure the commander is empowered to make the best decision possible.

To enable staffs to share the results of their CoA analysis and comparison, a figure should be added to FM 6-0 that shows a way for staffs to communicate the advantages and disadvantages of each CoA. A figure like that displayed in Table 4 and Figure 3 would provide a way for staffs to visually communicate their recommendations in addition to the usual narrative or quantitative approach. This will provide another option for planners to use depending on their specific circumstances, including different commanders, most of whom receive information differently.



**Figure 3. G-9's comparison of CoAs. Operation Determined Effort planners used a more qualitative assessment, including specific advantages and disadvantages as well as their recommended CoA. Each WfF lead presented based on their WfF, and then the lead planner presented an overall recommendation.**

## Conclusion

Army planning doctrine describes proven processes and techniques for staffs to analyze and plan operations. Unfortunately, staffs often apply these methods in isolation, creating gaps in planning. This article has explored four techniques adopted from the NATO COPD that can be used during ADM and MDMP to integrate existing doctrinal concepts and enable more effective planning. These techniques focused on four areas:

- Developing an operational approach with decision points and branch plans to enable flexibility during execution.
- Creating a task-and-effects matrix to enable the transition from conceptual to detailed planning.
- Increasing our emphasis on collaboration and developing “so what” and “therefore” conclusions during mission analysis to enable course of action development.
- Presenting the advantages and disadvantages of each CoA from the perspective of all WfF and subject-matter experts to enable a more holistic approach to CoA comparison.

Even if the recommended processes and tools are not included in future planning doctrine, leaders should consider using and adding them to their current planning standard operating procedures. All these techniques provide more options for planners to use during MDMP.

These techniques are only a small sample of the many things the U.S. Army can learn from foreign militaries. Although there is a tendency for some international organizations to adopt U.S.-centric techniques or for U.S.

Army leaders to encourage others to adopt their techniques, U.S. leaders can learn a lot from other countries and organizations as well.

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## Endnotes

<sup>1</sup> Gary M. Klein, "Doctrine: Our Professional Language and Observations from the Joint Readiness Training Center," *ARMOR*, April-June 2015.

<sup>2</sup> These methods are based on the authors' experience during Exercise Determined Effort, which was a combined planning exercise at the German Führungsakademie der Bundeswehr (FüAkBw). This exercise is the focal point of an annual student exchange between the FüAkBw and the U.S. Army's Command and General Staff Officer's Course (CGSOC). Exercise Determined Effort included officers from Canada, Estonia, France, Germany, Great Britain, Greece, Italy, the Netherlands, Norway, Poland, Sweden and the United States. The combined staff planned using the North Atlantic Treaty Organization's (NATO's) COPD as its foundation, with minor modifications from the German decision-making process. For more details on the exchange, read Josephine Ladner's Jan. 19, 2017, article in the *Leavenworth Lamp* titled, "German Exchange Program Marks 50 Years."

<sup>3</sup> ATP 5-0.1, *Army Design Methodology*, Washington, DC: Government Printing Office, 2015.

<sup>4</sup> The enemy CoA planners use to create the friendly CoA is one of the most significant assumptions during planning.

<sup>5</sup> Other techniques for depicting decision points and branch plans during planning can be found in Gary M. Klein and Alan P. Hastings, "Decision-Support Planning and Tools: Planning to Support Decision Making," *ARMOR*, April-June 2016.

<sup>6</sup> Eisenhower Presidential Library, "Eisenhower Quotes," Dwight D. Eisenhower Presidential Library, Museum and Boyhood Home, accessed April 30, 2017, [https://www.eisenhower.archives.gov/all\\_about\\_ike/quotes.html](https://www.eisenhower.archives.gov/all_about_ike/quotes.html).

<sup>7</sup> ATP 5-0.1.

<sup>8</sup> FüAkBw, "Arbeitshilfe: SOI COPG: Adaption of [COPD], Interim Version 3.0," October 2016.

<sup>9</sup> *Ibid.* The COPD refers to an "effects/actions matrix" and "effects matrix" interchangeably, but this article will use the term the Exercise Determined Effort staff used, which was "task and effects matrix." The staff used this term because it includes other U.S. and German doctrinal terms that facilitate shared understanding.

<sup>10</sup> JP 5-0, published 2011, describes a generic nesting of endstates, objectives, effects and tasks on pages III-20 to III-22, but it does not describe developing specific linkages as the Exercise Determined Effort planners did.

<sup>11</sup> ATP 5-0.1.

<sup>12</sup> ATP 5-0.1.

<sup>13</sup> FM 6-0, *Commander and Staff Organization and Operations*, Washington, DC: Government Printing Office, 2014.

<sup>14</sup> FüAkBw, "Arbeitshilfe: SOI COPG: Adaption of [COPD], Interim Version 3.0."

<sup>15</sup> *Ibid.*

<sup>16</sup> Factor analysis is similar to the "three-column format" the British Army uses in its combat estimate as well. The three-column format requires the staff to analyze "why" and determine "so what" outputs for each factor.

<sup>17</sup> FM 6-0.

<sup>18</sup> *Ibid.*

<sup>19</sup> *Ibid.*

<sup>20</sup> *Ibid.*

<sup>21</sup> All CoAs must pass the screening criteria of suitable, feasible, acceptable, distinguishable and complete; but not all CoAs are going to be optimized to each WFF, which formed the basis for each staff section's recommendation.

## **Acronym Quick-Scan**

**ADM** – Army design methodology

**ATP** – Army technical publication

**CGSOC** – Command and General Staff Officer’s Course

**CoA** – course of action

**COPD** – Comprehensive Operations Planning Directive

**FM** – field manual

**FoM** – freedom of maneuver

**HHT** – headquarters and headquarters troop

**JMRC** – Joint Multinational Readiness Center

**JP** – Joint publication

**LoE** – line of effort

**LoO** – line of operation

**MCCC** – Maneuver Captain’s Career Course

**MDMP** – military decision-making process

**NATO** – North Atlantic Treaty Organization

**O/C/T** – observer/coach/trainer

**SOI** – standing operating instructions

**Wff** – warfighting function