



Photo illustration by Emma Morris

A Soldier uses a dry-erase board to brainstorm information that will later be used in the planning process.

Deciphering the Code: Using Army Design Methodology to Inform Intelligence Analysis

by Major Erin A. Stevens

A Lesson from World War II

In the autumn of 1944, Adolf Hitler cloaked Operation Wacht am Rhein (Watch on the Rhine) in secrecy. He forbade discussion of the offensive, including via telephone, telegraph, and wireless. Even the operation's codename was designed for deception, chosen to give the impression the plan was for a defense at the Rhine.¹ When the attack launched in December, the element of surprise dominated, despite indicators that existed before the attack and that may have suggested its inevitability.² Ultra intercepts, air reconnaissance, prisoner interrogations, and information provided by civilians all suggested not only that there would be an attack, but that it would occur through the Ardennes Forest.

In November 1944, however, U.S. Army intelligence officers observing the 6th Panzer Army's transfer to the west bank of the Rhine River concluded that the 6th Panzer planned to counterattack at the Roer River.³ Analysts believed that a German attack would take place north of the Ardennes, near Cologne, even as IX and XIX Tactical Air Commands identified rail movement, activity at marshaling yards, and piles of equipment in the Eifel region.⁴ A week before the German attack, Third U.S. Army G-2 COL Oscar W. Koch determined that forces identified in Eifel would be used as a diversion or as a spoiling attack.⁵

The German offensive, later known as the Battle of the Bulge, is one of many examples of intelligence professionals



U.S. Army engineers emerge from the woods and move out of defensive positions after fighting in the vicinity of Bastogne, Belgium, during the Battle of the Bulge.

making inadequate assessments despite available evidence in support of a contrary point of view. But the purpose of this article is not to place blame or decry intelligence failures. Intelligence, like war, is a human endeavor, and analysts base their intelligence recommendations on more than the collection of indicators. Analysts use their creativity, judgment, skill, and experience alongside indicators and information collection to make determinations and provide warning intelligence. Operational planners use the Army design methodology (ADM) to capitalize on critical and creative thinking and to inform subsequent detailed planning. Likewise, the intelligence analyst can employ his or her creativity and judgment through a reverse- or enemy-perspective ADM.

The U.S. military faces problems that intersect, reinforce, and compound across diverse areas while relationships among actors and across systems interact in unanticipated and surprising ways.⁶ Such ill-structured, complex problems demand that analysts facilitate systems thinking, avoid logical fallacies and cognitive biases, and have opportunities to reframe the problem when desired results prove elusive. The intelligence analyst can use ADM from an enemy perspective to give context to indicator analysis and fully

employ their creativity and judgment to the examination of indicators. This technique may enhance the ability of the analyst to provide indicator analysis and predictive intelligence to the commander, thereby enhancing the likelihood of mission success.

The Role of Indicator Analysis

Analysts conduct indicator analysis as one of their fundamental tasks.⁷ ATP 2-01.3, *Intelligence Preparation of the Battlefield*, defines an indicator as “an item of information which reflects the intention or capability of a threat to adopt or reject a course of action.”⁸ ATP 2-33.4, *Intelligence Analysis*, elaborates on

the definition, describing an indicator as “positive or negative evidence of threat activity or any characteristic of the [area of operation] AO that points toward threat vulnerabilities, the adoption or rejection by the threat of a particular activity, or that may influence the commander’s selection of a [course of action] COA.”⁹ Seasoned analysts understand that an indicator is not a piece of evidence like a fingerprint at a crime scene. They also understand that indicators are not always obvious and that they require aggregation.

Indicators are discrete items of key information that alone are not valuable but can provide insight and direction. Pieces of information do not take on meaning as indicators unless they are collected, interpreted, aggregated, and assembled. Take, for instance, the example indicators in ATP 2-01.3 (Figure 1 on the next page).

The absence or presence of maneuver or engineer assets does not necessarily provide evidence of the enemy’s intended course of action. Indicators of military action, including troop movement, weapons relocation, or the presence or absence of formations, are typically visibly apparent to the intelligence community given adequate collection.¹⁰ Potential indicators are numerous and can include the movement of units, movement of troops, recall

NAI	Grid Locations	Enemy COA	Indicators	HVT	NET/NLT
1	10A BC 12345 67891	COA1	1. SPF in hasty defensive positions in vicinity EA1 2. Blocking obstacles on southern portion of AA1	BMP-1KshM T-72B SPF SA-18	H+4/H+5
2	10A BC 23456 78910	COA2	1. SPF in hasty defensive positions in vicinity EA2 2. Blocking obstacles on southern portion of AA2	BMP-1KshM T-72B SPF SA-18	H+4/H+5
3	10A BC 21223 24252	COA3	1. Staging of the 65th Mechanized Battalion north of OBJ Bravo 2. The 72d Mechanized Battalion positioned as fixing force in vicinity minefields on AA1 3. Presence of turning obstacles on northern portion of AA2	BMP-1KshM T-72B SPF SA-18	H+3/H+4
4	10T BC 23456 78910	COA4	1. Presence of the 72d and 65th Mechanized Battalions in forward defensive positions 2. The 2S191s remain in southern urban areas	BMP-1KshM T-72B SA-18 TDA-2K UMZ-K 2ST91	H-3/H+7
AA	avenue of approach	H-hour	specific hour at which a particular operation commences	NAI	named area of interest
COA	course of action	HVT	high-value target	NET	not earlier than
EA	engagement area			NLT	not later than
				OBJ	objective
				SPF	special purpose forces

Figure 1. Constructing an Event Matrix¹¹

of reserve units or troops on leave, movement of supplies, opening of ports, rail yard activity, fuel movement, or missile placement. Indicators such as the specific emplacement locations and orientations of blocking or turning obstacles can provide even more specific information on the enemy's intent. These are all points of data that analysts may collect, label as indicators, and evaluate to make assessments on enemy actions.

Yet consider the idea of engineer presence. Engineer assets may be forward in both an enemy defense and an enemy offense. They may indicate a withdrawal or an attack, depending upon the type of asset present. When viewed this way, indicators are not evidence. Instead, the indicator provides insight into a situation and relies upon further judgment and interpretation to become valuable.

The JP 5-0, *Joint Planning*, definition of an indicator appears to subscribe to this sentiment. JP 5-0 employs the word "indicator" in its discussion of assessment and describes it as "a specific piece of information that infers the condition, state, or existence of something, and provides a reliable means to ascertain performance or effectiveness."¹² JP 5-0 determines that indicators should be relevant to a desired effect, objective, or end state; observable and collectable; responsive to changes in the operational environment; and resourced with sufficient collection assets.¹³ JP 5-0 also offers some helpful guidance for selecting indicators:

- ◆ Choose distinct indicators.
- ◆ Include indicators from different causal chains.
- ◆ Avoid or minimize additional reporting requirements for subordinate units.
- ◆ Maximize clarity.¹⁴

From this perspective, indicators are discrete, have an associated timeline, and provide positive or negative in-

formation about an enemy's intent or capabilities. The interpretation of an indicator or group of indicators may turn into a warning and precipitate action on the part of the commander. That indicator analysis becomes predictive, and it precipitates warning intelligence that results in operational action, achieving the goal that intelligence drives operations.

Because anything the enemy does could be an indicator of his intended course of action or provide insight into his capabilities or vulnerabilities, it is imperative that the intelligence analyst understand enemy intent, vulnerabilities, and capa-

bilities in combination with other activities he has undertaken. This complicates the effort of indicator analysis and requires increased emphasis on the analyst's creativity and judgment. A technique that the analyst may consider using in this situation is ADM, applying a reverse or enemy perspective.

The Army Design Methodology

ADM is an iterative sense-making process that aids in decision making by enhancing activities within the operations process, such as understanding, visualization, and description of the operational approach.¹⁵ ADM enables commanders to drive the operations process through understanding, visualizing, describing, directing, leading, and assessing operations.¹⁶ The methodology further applies critical and creative thinking to understand, visualize, and describe unusual problems and potential approaches to manage them.¹⁷ It expands understanding of the operational environment, the operational problem, and the conceptual operational approach that facilitates a transition to detailed planning with a shared commander's vision and intent.

When using ADM from an enemy perspective as part of the intelligence preparation of the battlefield (IPB), the intelligence analyst is able to exercise his or her judgment and creativity while employing skills and techniques already encouraged in intelligence doctrine and practice. Enemy-perspective ADM enhances the enemy view of the environment and may expand upon the options for enemy courses of action, a difficult aspect of the IPB. Enemy-perspective ADM helps the analyst to frame the environment and understand the enemy's desired end state before developing detailed operational or tactical enemy courses of action. This puts the intelligence analyst fully in an enemy perspective which better enables the analysis of indicators and understanding of enemy behavior and intent.

ADM includes multiple activities conducted sequentially, simultaneously, and iteratively. The first activity in ADM is framing the operational environment, a familiar activity for the analyst.¹⁸ Operational environments are complex and dynamic, and framing them involves organizing their interrelated variables and relevant actors.¹⁹ During framing, analysts develop an understanding of the current state of the operational environment from an enemy perspective, while envisioning the enemy's desired future state using techniques such as brainstorming, mind-mapping, and questioning assumptions.²⁰

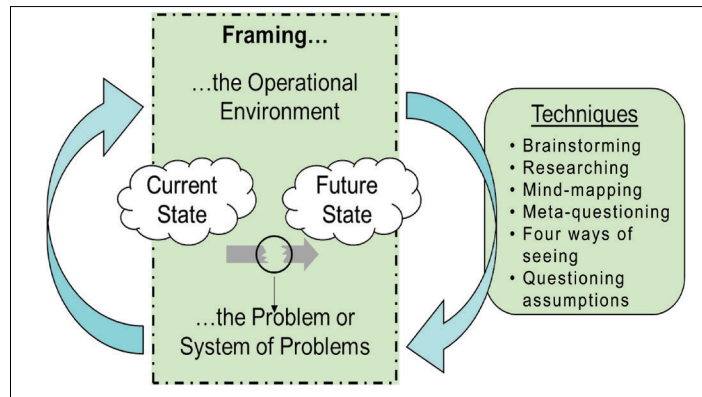


Figure 2. Problem Framing²⁷

Framing the operational environment helps the analysis team frame the enemy's problem. When the team identifies the obstacles between the current state of the operational environment and the enemy's desired future state, the problem or system of problems emerges.²¹ When the team identifies, maps, and describes interrelated issues, the team works to keep the focus of its efforts suitably narrow for the enemy's mission while remaining broad enough to capture factors that are either symptoms or causes of the obstacles impeding the enemy's desired future state.²² The problem frame sets the stage for the enemy's operational approach. The problem framing activity (Figure 2) may prompt a return to the environmental frame, and vice versa. ADM encourages a rich understanding of both.

Framing solutions is the ADM activity that benefits from a proper understanding of the operational environment and the problem, and it allows a transition to the detailed development of enemy courses of action during IPB. One way to frame an enemy solution is the development of an operational approach (Figure 3). The operational approach describes broad actions required to transform current conditions into the enemy's desired end state.²³ The operational approach communicates the enemy commander's intent.²⁴ The operational approach is also the primary product of design and allows the translation of op-

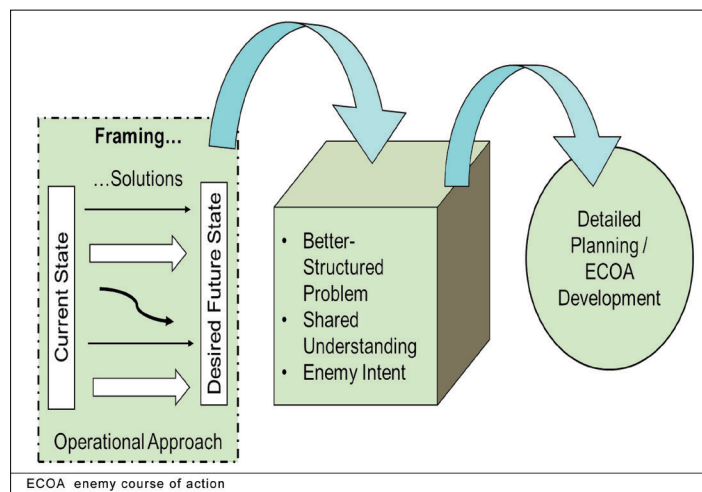


Figure 3. Operational Approach³⁵

erational concepts into the enemy's specific mission and tasks.²⁵

One of the benefits of ADM, which is also encouraged as an intelligence technique, is the facilitation of systems thinking. Systems thinking is a key concept of ADM.²⁶

Systems thinking is a process of understanding how aspects of a system work and influence each other as part of the greater whole. This helps the analysts examine the environment holistically from the enemy perspective and identify issues and tensions within the environment that may not be immediately apparent.²⁸ This technique helps de-compartmentalize the approach to the problem and avoids linear cause-and-effect thinking, which highlights the complexity of the enemy situation and thought process.²⁹ JP 2-01.3, *Joint Intelligence Preparation of the Operational Environment*, recommends the use of a systems perspective because it helps identify potential sources of indications and warning.³⁰

With systems thinking, analysts avoid the illusion that dividing complex problems into component parts makes them more manageable.³¹ Breaking up problems divorces them from their context and prevents recognition of the consequences of shifts within the system.³² Fully engaging in systems thinking prevents engagement in generalizations and abstractions that may create a faulty impression of the enemy's operational approach.³³

ADM, like many intelligence skills and techniques, further encourages teams to avoid logical fallacies and overcome cognitive biases through the employment of critical and creative thinking.³⁴ When framing, participants in ADM guard against biases and fallacies through awareness of the thought processes and heuristics that contribute to faulty reasoning.³⁶ The intelligence analyst is familiar with these processes. A common cognitive bias is confirmation bias, which results from the brain's use of associative memory.³⁷ With confirmation bias, planners seek

evidence compatible with what they already think about a situation, which is often an intuitive view.³⁸ Analysts may ignore evidence contrary to the initial view and fail to recognize shifts in the problem or operational environment.

The Japanese became victims of their cognitive biases at Nomonhan in 1939, which aided in their defeat by the Soviet Army. After a series of escalatory engagements with a growing Soviet force, the Japanese Kwantung Army continued to operate off the assumption that the Soviet logistic force could not be larger or more capable than their own.³⁹ This assumption was built on confirmation bias, from which the Kwantung Headquarters staff sought evidence to confirm their impression of a Soviet Army broken by Joseph Stalin's 1937 purge of military leadership.⁴⁰

The Japanese also fell victim to the mirror-imaging fallacy that can be overcome using the "four ways of seeing" technique used in ADM.⁴¹ Mirror imaging means that analysts fill knowledge gaps by assuming the enemy acts the way the friendly army would act.⁴² The Kwantung Army could not fathom the idea that the Soviet logistical effort included more than 4,200 trucks because they had only 800 in the entire region. Furthermore, operations by infantry beyond 125 to 175 miles from the railhead were equally unbelievable to the Kwantung Army, while the Soviets ranged beyond 200 miles.⁴³ Their anticipation of Soviet actions did not reflect the Soviets' intent or capability, which led to catastrophic defeat. The analyst with a holistic understanding of enemy intent and capabilities developed through the integration of enemy-perspective ADM into the IPB process can avoid many of these pitfalls.

Another important feature of ADM is the opportunity to reframe the problem when desired results prove elusive. Assessment is a crucial and continuous aspect of the operations and intelligence processes. Occasionally, assessment will reveal that the operational environment experienced a significant shift or that key assumptions are invalid. Under these circumstances, analysts may consider reframing their perspective of the enemy.⁴⁴

Reframing provides an opportunity to gain new perspective on a problem or its proposed resolution. In World War I, the armies of Europe found they could not rationally cope with an attritional style of warfare.⁴⁵ The Soviet Army thus reframed its approach to combat to include a systems approach, a comprehensive idea of the center of gravity, and the *glubokii boi* or deep battle.⁴⁶ Soviet theorists visualized modern warfare to develop the operational level as a result

of their reframing of the environment and the problem of overcoming attritional warfare.⁴⁷ Likewise, the analyst who recognizes that the interpretation of the enemy's problem or end state is inadequate has the opportunity to reframe the understanding of the enemy's intent and correct course.

ADM does not seek to replace detailed planning through operational processes such as the military decision-making process; instead, it enhances the staff's ability to conduct detailed planning. Likewise, an enemy-perspective ADM would not seek to replace the detailed enemy analysis within IPB; rather, it enhances understanding the enemy before entering into detailed course of action development.

Provide Context to Indicators with ADM

Intelligence is a function that allows a commander to drive operations. Most analysts and decision makers would agree that a difference exists between information and intelligence. Information is data, a collection of the things that we know. Intelligence is data used for a purpose, which

has been analyzed, interpreted, and processed and can inform a commander's decision-making process.

Intelligence focuses on the enemy's behavior and intent and aims to forecast potential future actions for the commander.

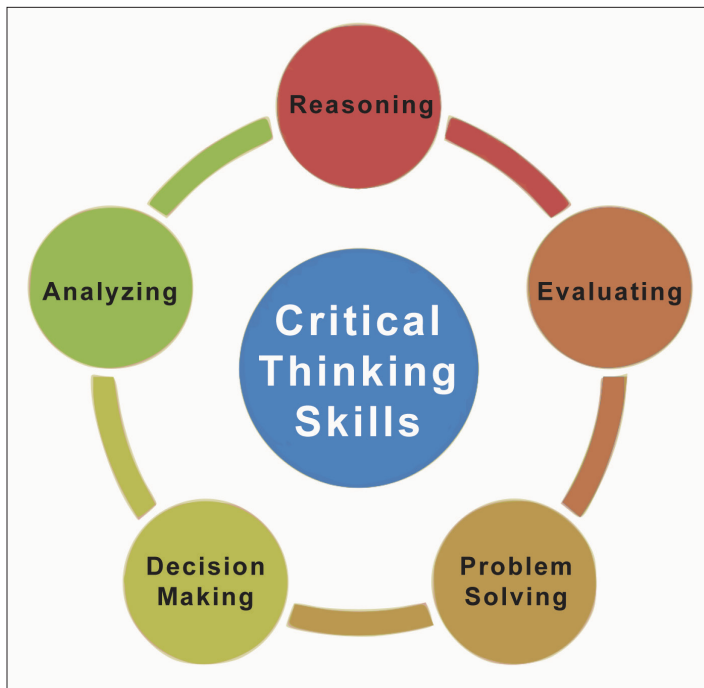
Indicators are a small part of intelligence but have the ability to shed light on the larger situation. When an analyst uses enemy-perspective ADM to enhance the detailed analysis conducted during IPB, the analyst may experience a shift in perspective that enables him or her to employ creativity and judgment with respect to indicators. A single indicator, or a dozen indicators, cannot necessarily reveal an enemy course of action. Yet a single piece of information might have context within an enriched understanding of the enemy's goals and operational approach.

Potential indicators are many, but at the tactical and operational levels, the focus tends to be on the tools of direct combat. Like the examples in ATP 2-01.3, *Intelligence Preparation of the Battlefield*, or ATP 2-33.4, *Intelligence Analysis*, the presence of prepared battle positions, the incidence of armored vehicles, and the assembly of combat formations feature heavily. Logistics preparations are a serious indicator of the preparation for hostilities.⁴⁸ Logistics preparations may disrupt the local transportation systems.⁴⁹ In some cases, trucks may even be requisitioned from the civilian economy as they were during the Soviet invasion of Czechoslovakia in 1968.⁵⁰ Enemy propaganda is also an indication of the enemy's intent because it indicates an enemy's concern about a particular subject.⁵¹

To succeed in the business of the future, we have to become the very people we're trying to reach.

—Brian Solis, digital analyst, speaker, and author

These discrete points, however, alone cannot provide adequate predictive intelligence. Indicators must be aggregated, analyzed, and assessed using the creativity, experience, skill, and judgment of the intelligence analyst. Enemy-perspective ADM can provide the context within which such indicators may be analyzed because it informs the enemy's operational approach and therefore the enemy courses of action. Furthermore, this technique may provide insight into the enemy's intent and strategy. When we understand the enemy's intent, more precise and realistic courses of action may develop during IPB. Pieces of seemingly unrelated information may correspond to an enemy action or reveal an enemy deception plan.



Consider briefly the surprise and deception involved in Operation Wacht am Rhein. Knowledge of an impending German offensive was gained when Hitler revealed to the Japanese ambassador his plan to attack in early November; the ambassador's report upon returning to Tokyo was quickly decrypted and disseminated.⁵² The question then became, Where along the Western Front would the German Army attack?

During IPB, the analyst defines the operational environment, describes environmental effects on operations, evaluates the threat, and determines threat courses of action.⁵³ Having secured a foothold on the continent over the summer, Allied forces had a relatively mature understanding of the operational environment and its impacts on operations and threat capabilities. Intelligence analysis revealed part of Hitler's late-1944 plan, but not all. Information collected and assessed as indicators would have to reveal the specific course of action the Germans chose to execute.

The intent of the conduct of enemy-perspective ADM in this situation would be to give context to the discrete indicators. ADM and its associated techniques may have created a greater understanding of Hitler's desperation, of his view that incompetent and untrustworthy generals were the source of Germany's wartime failures, and of his intent to divide the alliance by isolating British and Canadian forces during the German drive to Antwerp.⁵⁴ Indicators may have been given context within a richer understanding of the enemy's environmental frame, problem frame, and operational approach. Yet history remains in the past.

For the current analyst, the complex world will only produce additional challenges. With the potential for a denied electromagnetic spectrum, and future technological aid still on the horizon, we must arm the intelligence analyst with every technique and skill available. ADM is an existing skill that allows the aggregation and analysis of indicators inside an IPB frame informed by a broader, deeper understanding of the enemy approach. It is a layer upon which to build an enemy framework that might give insight into enemy activity.

Consider the enemy obstacle presence indicator. Alone, it is a discernible item of information available for collection. For the analyst, it is a potential indicator, a point of insight into the enemy's behavior or desired course of action. The analyst who conducted ADM from the enemy perspective may have an advantage in the examination of this item of information. The analyst may have identified that the isolation of friendly forces from important resources informed the bulk of the enemy operational approach. This might have allowed the development of a rich course of action during IPB, highlighting the enemy would capitalize on the opportunity to conduct an offensive with the aim of isolation. This would give context to the forward presence of engineers and allow the analyst to flex his or her creativity and judgment in the assessment of the information. A greater depth of perspective on the enemy might even highlight the enemy engineers as part of a deception operation.

The analyst who understands the enemy well can be the best intelligence weapon on the battlefield. Techniques that enable the analyst to apply creativity, skill, and experience to the enemy problem set may enhance such a weapon. Like the operational planner who employs ADM to enhance the activities within the military decision-making process, the intelligence analyst can employ the same procedures from an enemy perspective to enhance the activities within IPB. Intelligence, like operations, remains both art and science. ADM is a way to use the art to improve upon the science and thereby achieve missions, defeat our enemies, and win. 🌟

Endnotes

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