

Information as a Mission Variable

MAJ CHRISTOPHER M. SALERNO

The publication of Field Manual (FM) 3-0, *Operations*, introduced information as the newest mission variable alongside mission, enemy, time, terrain, troops available, and civil considerations. FM 3-0, though, makes it clear that information is not a stand-alone mission variable but one that must be included in the analysis of other mission variables.¹ Information advantage is a new term, but the definition aligns well with combined arms maneuver. Information advantage is “when a force holds the initiative in terms of situational understanding, decision-making, and relevant actor behavior.”² Electronic warfare (EW) platoons, military intelligence companies, cavalry squadrons, and battalion scout platoons across a brigade combat team seek to give their commanders an information advantage by protecting or enabling situational understanding. Defensive tactical mission tasks like disrupt or turn are about influencing the enemy by attacking their situational understanding and interrupting their decision-making, forcing them to react prematurely to their disadvantage. Smokescreens and EW jamming are just two examples of attacking an enemy’s ability to command and control at the tactical level. Tactical-level leaders conduct information operations throughout large-scale combat operations (LSCO); however, tactical-level doctrine currently struggles to deliberately incorporate information as a mission variable throughout the planning process.

This article argues that the Army should update Appendix B in Army Techniques Publication (ATP) 3-21.10, *Infantry Rifle Company*, and ATP 3-90.1, *Armor and Mechanized Infantry Company Team*, to better incorporate information as a mission variable within the troop leading procedures. The new FM 5-0, *Planning and Orders Production*, highlights that information must be analyzed by all commanders and staffs constantly throughout the operations process.³ This reality is seen on the battlefields within Ukraine, as General Valerii Zaluzhnyi listed EW as the second most important priority for Ukrainian success.⁴ First, information must be deliberately emphasized throughout mission analysis. Secondly, the principles of information advantage should supplement how tactical leaders approach course-of-action (COA) development. Finally, information considerations should inform how leaders understand their tactical risk. As currently written, doctrine emphasizes the warfighting functions, but including information ultimately changes the emphasis on the unit’s combat power.



A Soldier assigned to the 2nd Armored Brigade Combat Team, 3rd Infantry Division prepares to move during a live-fire exercise at the National Training Center, Fort Irwin, CA, on 8 March 2023. (Photo by SPC Duke Edwards)

Mission Analysis

Appendix B, Planning and Preparation, of ATPs 3-21.10 and 3-90.1 should be updated to emphasize information, which can be accomplished by providing weight to the communication portion of shoot, move, and communicate. ATP 3-90.1 states, “To assist in understanding the OE [operational environment], leaders in the company team use two tools, operational and mission variables.”⁵ Still, the same doctrine does not stress information during the planning process. Information connects the disparate actions of shooting, moving, and communicating. In ATPs 3-21.10 and 3-90.1, terrain and weather analysis currently focus on movement and weapons effects analysis, but both publications should equally include communications analysis. As explained in these ATPs, intelligence preparation on the battlefield emphasizes how the enemy will fire and maneuver. Still, the People’s Liberation Army (PLA) and Russian military prioritize information warfare with deliberate tactical-level implications.⁶ ATPs 3-90.1 and 3-21.10 both list reasonable assets an enemy higher headquarters may employ to support their ground maneuver, neither of which include EW assets. The failure to properly emphasize information during the troop leading procedures in current doctrine undermines tactical-level leaders and should be changed.

Terrain analysis, within tactical-level doctrine, currently focuses on drawing movement and weapons effects deductions for both friendly and enemy forces, but it should be expanded to consider the mission variable of information deliberately. Table A-3 in Appendix A of FM 5-0 provides a list of information-centric questions to add depth to the other mission variables, with the questions under terrain and weather focused on emission control and communication (see Figure 1).⁷ Army Doctrine Publication (ADP) 3-13, *Information*, defines information as “data in context to which a receiver (human or automated system) assigns meaning.”⁸ Terrain affects the connection between the data and the receiver, potentially under-

Figure 1 — Example Mission Variables Informational Questions (FM 5-0)

Mission Variables	Informational Questions
Mission	What are we told to do and for what purpose? What strategic messaging is occurring that our mission supports? Does it include shaping enemy perception, decision making, and behavior? Does it include military deception? What OPSEC measures are implied?
Enemy	What are the enemy’s capabilities to disrupt our C2 (including cyber, EW and space)? What are their collection capabilities and can we counter them with good OPSEC measures? How susceptible are their troops to our messaging (MISO)? Are they vulnerable to deception (including MILDEC, TAC-D, and DISO)? What OPSEC measure can we implement to protect our information?
Terrain and weather	What are the terrain and weather impacts on the transmission of friendly communications, especially ground-based, line-of-sight communications? Can terrain mask friendly EMS signatures? What is the space weather impact on satellite-enabled communications (including C2, EW, cyber, and space)?
Troops and support available	What information capabilities do we have available, either organic, assigned, or attached? Do we have PSYOPS, civil affairs, cyber support elements, or information operations field support teams? What support can headquarters provide?
Time available	Do we have time for shaping operations, which may include appeals to surrender (MISO), jamming (EW), or offensive cyberspace operations? Do we have sufficient time to devise and execute a deception plan, or at least deception in support of OPSEC (DISO)? Is there sufficient time available for the information-related capabilities to affect behavior towards a favorable action? MISO usually does not change people’s minds overnight, or on just one broadcast or leaflet drop. Likewise, it takes time to develop a deception plan. What OPSEC measure can we implement to protect our critical information? For support we need from headquarters, when is it available?
Civil considerations	Is the local population hostile, neutral, or friendly? Who are the relevant actors that can influence specific audiences? What conduits are available to deliver messages to the populace? Are they susceptible to MISO? What can civil affairs do to help?
C2 DISO EMS EW MILDEC MISO OPSEC PSYOPS TAC-D	command and control deception in support of operations security electromagnetic spectrum electronic warfare military deception military information support operations operations security psychological operations (forces) tactical deception

mining assured communication for both blue and red forces while providing opportunities to protect communication. Company-level leadership should analyze the effects of terrain on communications under obstacles and within observation/fields of fire. Neither ATP 3-21.10 nor ATP 3-90.1 lists a single question under either category about how that terrain will affect communication. Terrain can hinder line-of-sight radio communication and protect a force from detection if properly accounted for and utilized. Leaders can estimate the location of likely enemy command and control nodes and then use those deductions to pre-plan fire missions to target enemy command and control. Terrain analysis within these doctrinal publications currently emphasizes movement and weapons analysis. It should include communications analysis because shooting and moving are only part of the equation and are insufficient without properly planned communication.

Weather can affect beyond line-of-sight communication, such as high frequency (HF) radios, which a reconnaissance unit may depend on as its primary communication with higher headquarters. HF is less pervious to the effects of terrain, but it is vulnerable to certain weather conditions.⁹ Leaders should be reading the weather data to make deductions about both the friendly's and enemy's ability to communicate, as this directly affects command and control. The modern battlefield is littered with unmanned aerial systems, which can hinder a unit's ability to mass the forces necessary for success.¹⁰ The proliferation of drones, though, is limited by weather, especially the smaller and more inexpensive variants. An enemy defense built on many drones capable of providing a real-time common operating picture to the higher headquarters is vulnerable to units capable of exploiting weather opportunities to seize an advantage. The weather may mask friendly units in the same way low-hanging fog can mask the movement of small dismounted teams through otherwise observable terrain. ATP 3-21.10 does not refer to how weather affects communication in Appendix B, and ATP 3-90.1 references how high-speed winds and precipitation may affect communication. They do not refer to the weather's effects on intelligence, surveillance, and reconnaissance (ISR) platforms. Information advantage hinges on which side has a better situational understanding. The terrain and weather affect both friendly forces and adversary forces, and it is incumbent on leaders to understand and analyze these effects before developing an enemy's situation template and friendly course of action.

China and Russia emphasize information warfare with implications at all three levels of warfare. Yet, the current doctrine for company-level maneuver leaders generally categorizes those assets as "other" within capabilities. ADP 3-13 states, "Reflexive control is a concept that targets geopolitical opponents at the strategic level down to enemies on the battlefield at the tactical level."¹¹ This can be seen on the battlefield through Russia's extensive use of EW assets at each level of war, including the tactical, with electronic warfare units knocking drones out of the sky through non-kinetic means.¹² Dr. Lester Grau and Charles Bartles' book *The Russian Way of War* describes how a Russian EW company synergizes differing warfighting functions like protection, fires, and intelligence towards a common end.¹³ The PLA similarly emphasizes EW as a key trend on the modern battlefield and is resourcing accordingly at all levels of war.¹⁴ Russia and China incorporate EW in ground maneuvers to provide an edge in situational understanding, decision-making, and relevant actor behavior. ATPs 3-21.10 and 3-90.1 correctly state that leaders need to analyze how the enemy wants to fight doctrinally and how it will fight given the specifics of the environment, but neither document refers to EW capabilities despite their importance in how the Russians want to fight.

With the transition of focus to LSCO, leaders often emphasize that ground forces cannot assume that friendly forces will have constant air superiority. This is correct, but it is just one side of how LSCO changes the dynamic because leaders will not have an assured information advantage. U.S. Air Force or Army attack aviation may not be available for a company-level fight. Still, the company commander may not know fully what the enemy is doing and may be unable to call on the reserve via frequency modulation (FM) radio to counter an enemy attack. The purpose of including information within the analysis of the other mission variables is to get leaders thinking about how the technology one relies upon can be attacked and

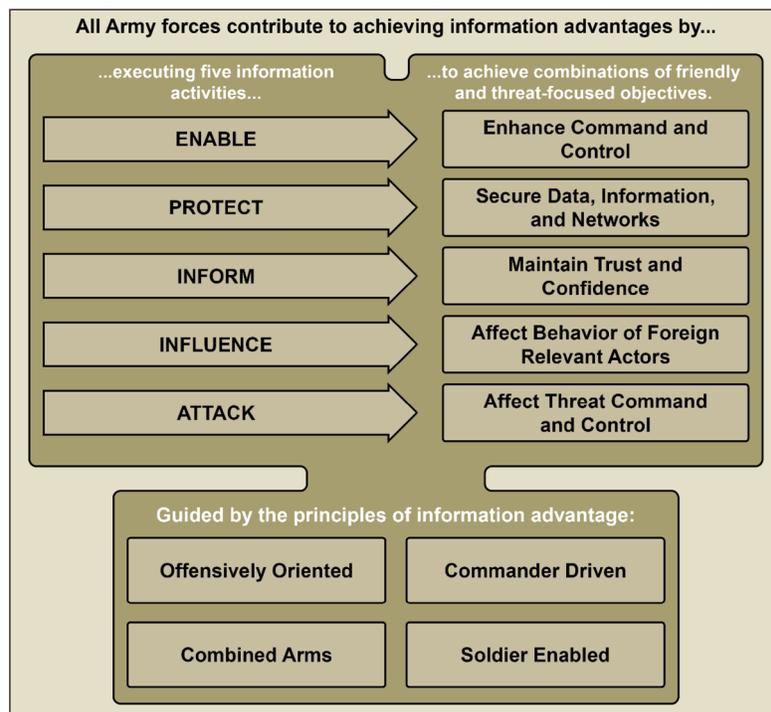
manipulated to affect decision-making or limit options, and it may take on many different forms. Tactical-level doctrine fails to adequately explain how the battlefield is “informationized” and how the enemy will use the terrain and weather to leverage their strengths, protect their weaknesses, exploit U.S. advantages, and mitigate U.S. strengths. ATPs 3-21.10 and 3-90.1 should include these considerations during mission analysis. Leaders who better understand how information affects operations are better suited to incorporate the imperatives of operations from FM 3-0 and have laid the groundwork for approaching how information can aid in developing friendly COAs.¹⁵

COA Development

The principles of information advantage should supplement how tactical leaders approach COA development. ATPs 3-21.10 and 3-90.1 state, “A COA describes how the unit might generate the effects of overwhelming combat power against the enemy at the decisive point with the least friendly casualties.”¹⁶ Both ATPs make a single reference to information during COA development. Yet, as FM 3-0 states about information, “It is also a key component of combat power necessary for seizing, retaining, and exploiting the initiative and consolidating gains.”¹⁷

There are two ways to incorporate information in COA development. First, instead of analyzing relative combat power solely through the lens of the warfighting functions, it could be through the lens of combat power to include the warfighting functions, information, and leadership. The other option is framing the deductions of the warfighting function in terms of leadership and information. The first option better aligns with FM 5-0, which lists information to be compared against the adversary’s capabilities.¹⁸ The second option better aligns with how information should be integrated with mission analysis; information tends to appear within each warfighting function as the connective tissue instead of as a standalone category. This then provides an opportunity for ATPs 3-21.10 and 3-90.1 to introduce the principles of information advantage: offensively oriented, combined arms, commander driven, and soldier enabled.¹⁹ Framing deductions from analyzing relative combat power through different lenses gives commanders a better tool for developing a COA than currently provided in doctrine.

Figure 2 — Information Advantage Framework (ADP 3-13)



The deductions from analyzing relative combat power form company-grade leaders' key decisions when developing a COA. It is the basis under which a leader takes what is available and successfully employs it against the adversary, outlining in the doctrine that those deductions should provide an information advantage whenever possible. FM 3-0 recognizes that maneuver and attrition are valid options for approaching a situation.²⁰ Whether conducting maneuver warfare or attrition, having an information advantage can be decisive. Understanding how to leverage persistent ISR to enable targeting and ground maneuver can provide opportunities to defeat the enemy. Still, our tactical-level doctrine does not specify those deductions beyond that one should seek an advantage. Information advantage is not the only thing a leader should seek when analyzing relative combat power, but it is one area they should consider. It should be clearly articulated in doctrine. This will help frame how leaders approach analyzing relative combat power and how they can use those deductions to bridge into generating options, arraying forces, and developing a concept of the option.

Currently, doctrine does not include much in-depth information during COA development, which again does not serve company-grade leaders well. Leveraging the warfighting functions towards achieving an information advantage is employing a combined arms approach. Doctrine should clarify this to leaders attempting to understand how to develop a plan. Ultimately, commanders have to make decisions through planning and execution based on their understanding of the situation. ADP 6-0, *Mission Command*, clearly states how information relates to commanders' activities: "In the context of decision making, information is data that has been organized and processed in order to provide context for further analysis."²¹

Brand new platoon leaders should first master fire and maneuver and then, with experience, how the other war-fighting functions are equally as vital to success. As leaders grow in a unit, they articulate concerns beyond fire and maneuver. This is a positive development, as leveraging the whole spectrum of assets available to achieve that edge in decision-making will serve the unit well. Again, information advantage is not the only way to frame what type of deductions leaders should search for while analyzing relative combat power. Still, it should be a key one and given consideration in doctrine. Leaders who understand how information provides opportunities for success will also better understand their framing of tactical risk.

Tactical Risk

An improved appreciation of information within ATPs 3-21.10 and 3-90.1 would better inform the understanding of tactical risk and how a commander can mitigate that tactical risk. Tactical risk falls into two general categories: Deliberate choices the commander makes in friendly actions or allowing an enemy action, and this understanding is informed by mission analysis.²² Improving how maneuver company-grade leaders incorporate information into mission analysis yields a better understanding of tactical risk. The adversary will properly integrate information into mission planning, and maneuver leaders must understand this to account for it.

A commander's chosen action to assume risk in information may provide a temporary advantage, but it must be mitigated. A commander may mitigate risk by using operations in the information environment. A unit may use EW to cue the redeployment of forces from one avenue of approach in the defense to another. A commander may employ deception to lure the enemy into an engagement area. EW jammers may reinforce a smaller force to induce confusion in an engagement area synchronized with direct and indirect fires. A commander has multiple options available, but he or she must appreciate that operations in the information environment exist and account for them during the troop leading procedures.

Conclusions and Recommendations

Information is relevant to company-grade maneuver leaders, and our doctrine should reflect information as a mission variable. Information does not belong solely to a public affairs team; it is not only relevant to civilian considerations or solely confined to messaging. Information is the connective tissue between all the warfighting functions, enabling leadership and decision-making. Terrain, weather, and the adversary can



Soldiers from 2nd Battalion, 22nd Infantry Regiment, 1st Brigade Combat Team, 10th Mountain Division, conduct a combined arms live-fire exercise at Fort Drum, NY, on 6 February 2024. (Photo by SPC Kaylan T. Joseph)

challenge assured communication to create an effect supporting an objective. Friendly forces can do the same thing. Cyber and space capabilities bring a lot to bear on operations in the information environment, many of which are beyond the ability of a rifle company commander to influence, but they are not the only areas. Camouflage, deception operations, EW, and smoke screens are capabilities internal to a brigade combat team that fall within the umbrella of information. ADP 3-13 defines information as “data in context to which a receiver (human or automated system) assigns meaning.”²³ A maneuver company commander can manipulate the data, challenge how it is received, and even take advantage of the context.

The Army must update ATPs 3-21.10 and 3-90.1 to better incorporate information as a mission variable. FM 5-0 provides a good starting point, but it should not just be copied and pasted. Current conflicts reveal that the information environment is contested, and those at the tip of the spear need doctrine that reflects this reality and provides the necessary tools to operate successfully in this contested environment.

Notes

¹ Field Manual (FM) 3-0, *Operations*, October 2022, 1-23, https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN36290-FM_3-0-000-WEB-2.pdf.

² Army Doctrine Publication (ADP) 3-13, *Information*, November 2023, viii, https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN39736-ADP_3-13-000-WEB-1.pdf.

³ FM 5-0, *Planning and Orders Production*, May 2022, A-2, https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN36775-FM_5-0-001-WEB-3.pdf.

⁴ General Valerii Zaluzhnyi, “The Commander-In-Chief of Ukraine’s Armed Forces on How to Win the War,” *The Economist*, 1 November 2023, <https://www-economist-com.usnwc.idm.oclc.org/by-invitation/2023/11/01/the-commander-in-chief-of-ukraines-armed-forces-on-how-to-win-the-war>.

⁵ Army Techniques Publication (ATP) 3-90.1, *Armor and Mechanized Infantry Company Team*, October 2023, 1-1, https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN39568-ATP_3-90.1-000-WEB-1.pdf.

⁶ ADP 3-13, 1-12.

⁷ FM 5-0, A-4.

⁸ ADP 3-13, 1-1.

⁹ ATP 6-02.53, *Techniques for Tactical Radio Operations*, February 2020, 3-13, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN20819_ATP_6-02x53_FINAL_WEB.pdf.

¹⁰ Franz-Stefan Gady, "How an Army of Drones Changed the Battlefield in Ukraine," *Foreign Policy*, 18 December 2023, <https://foreignpolicy.com/2023/12/06/ukraine-russia-war-drones-stalemate-front-line-counteroffensive-strategy/>.

¹¹ ADP 3-13, 1-12.

¹² Paul Mozur and Aaron Krolik, "The Invisible War in Ukraine Being Fought over Radio Waves," *The New York Times*, 19 November 2023, <https://www.nytimes.com/2023/11/19/technology/russia-ukraine-electronic-warfare-drone-signals.html>.

¹³ Dr. Lester W. Grau and Charles K. Bartles, *The Russian Way of War* (Fort Leavenworth, KS: Foreign Military Studies Office, 2016), 290, <https://permanent.fdlp.gov/gpo106676/2017-07-The-Russian-Way-of-War-Grau-Bartles.pdf>.

¹⁴ ATP 7-100.3, *Chinese Tactics*, August 2021, 7-2, https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN34236-ATP_7-100.3-001-WEB-3.pdf.

¹⁵ FM 3-0, x.

¹⁶ ATP 3-21.10, *Infantry Rifle Company*, May 2018, B-24, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN8519_ATP%203-21x10%20Final%20Web.pdf; ATP 3-90.1, B-24.

¹⁷ FM 3-0, 1-22.

¹⁸ FM 5-0, 7-6.

¹⁹ ADP 3-13, 2-14.

²⁰ FM 3-0, 1-3.

²¹ ADP 6-0, *Mission Command*, July 2019, 2-4, https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN34403-ADP_6-0-000-WEB-3.pdf.

²² ATP 3-90.1, B-9.

²³ ADP 3-13, 1-1.

MAJ Chris Salerno is currently a student at the Naval War College. He previously served as a Maneuver Captain's Career Course small group leader at Fort Moore, GA. His other assignments include serving as an observer-coach-trainer (OCT) on the Cobra Team at the National Training Center at Fort Irwin, CA; headquarters and headquarters company commander in 1st Squadron, 5th Cavalry Regiment and a troop commander in 4th Squadron, 9th Cavalry Regiment, both in 2nd Armored Brigade Combat Team, 1st Cavalry Division; and as a lieutenant in the 2nd Infantry Brigade Combat Team, 10th Mountain Division.