

The Information Renaissance

Systems, Culture, and People

by Capt Daniel G. Lim

In his 2019 *Commandant's Planning Guidance*, Gen Berger stated that new threats, missions, and technologies require the Marine Corps to adjust its organizational design and modernize its capabilities to thrive in future operations.¹

With a shared understanding of strategic guidance and a responsibility to inform force design, 1st Intelligence Battalion communications platoon has identified critical gaps—specifically in sensitive information communications capabilities—and has come to the following conclusions: today's platforms are insufficient to thrive tomorrow; the application of strategic vision at a tactical level demands exigent modernization; the dichotomy between tactical and garrison systems is ineffective; no new technology in and of itself will solve the cultural intransigence against transforming antiquated tactics, techniques, and procedures; and today's manpower and talent management practices require a revamp to effectively prepare for the next paradigm of information operations.

The historically dominant communications platforms are at a warfighting disadvantage, rendering the Marine Corps Intelligence, Surveillance, and Reconnaissance Enterprise (MCISRE) ineffective in expeditionary advanced base operations. To thrive in operations in the information environment, the communications platforms must be expeditionary with increased mobility, flexibility, and resiliency. The desired endstate is for the MCISRE to maneuver both in physical and information domains while maintaining the flexibility to adapt and outpace the adversary's targeting cycle. To achieve this, informa-

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tion systems must be cost-effective and less cumbersome, especially for stand-in forces conducting reconnaissance and counter-reconnaissance across the competition continuum.² Heavy and expensive communications platforms are combat-ineffective for stand-in forces needing to operate within the adversary's weapons engagement zone with an array of low signature, affordable, and risk-worthy platforms and payloads.³ Lastly, the communications platforms

must be resilient and survivable with a low probability of intercept and detection. In a space characterized by the proliferation of anti-access/area denial (A2/A2) threat capabilities in a mutually contested, command and control (C2) denied and degraded environment where air and space superiority is not guaranteed, information operations solely reliant on information systems with a high probability of intercept and detection are recipes for catastrophic loss.



The full implications and effects of overreliance on high bandwidth remain to be seen in the years and decades ahead. What is certain, however, is that the MCISRE is at an inflection point in the history of the information environment. (Photo provided by author.)

Today's readiness, to quote Gen Brown and Gen Berger, "remains inappropriately weighted in favor of what is available to fight today with what we currently have on hand."⁴ Over time, we have generated significant inertia by pursuing capabilities and platforms based on previous commitments and requirements—many of which, including sensitive information systems, existed over a decade ago and well before the release of existing strategic guidance.⁵ Therefore, concerns highlighted in readiness reports and articulated through the table of organization and equipment change requests (TOECRs) are more important than ever. In turn, higher headquarters must deliberately validate these suggested changes and properly equip tactical units such that they can provide robust communications support to operations in the information environment.

In 2019, the Chief of Naval Operations and the Commandant of the Marine Corps approved the Concept for Expeditionary Advanced Base Operations, a foundational naval concept. Applying this strategic guidance at a tactical level, the communications platoon realized an even more exigent need to communicate while mobile than was previously recognized. In close coordination with higher headquarters, we have identified and communicated our modernization requirements including, but not limited to: C2 automation for the intelligence architecture, unmanned sensors for surveillance, and enhanced C2 capability for counterintelligence/human intelligence. More specifically, we articulated the need to communicate sensitive information across the force throughout future operating environments, enabling joint command, control, communications, computers, cyber, intelligence, surveillance, reconnaissance, and targeting within the weapons engagement zone. In the future operating environment, the MCISRE must modernize its sensitive information systems with the following end state: receive and disseminate sensitive information from stand-in forces to larger intelligence community realtime, shortening the kill chain across the competition continuum; facilitate reconnaissance and counter-recon-

naissance by maintaining positional advantage and survivability through mobility; and enable network access and integration with naval, forward deployed formations operating under maneuver warfare principles at extended ranges. As research and development continue, new and innovative technologies will play an instrumental role and pay dividends in future operations in the information environment. The ultimate challenge rests with the MCISRE. It must realize the marginal relevance of legacy equipment to a strategy that prioritizes readiness for conflict with revisionist great powers, take advisement from the tactical unit commanders, and place more weight on factors related to service modernization.⁶

In the information environment, the one network and two systems communications concept, which bifurcates tactical and garrison employment, is antiquated and ineffective. As Gen Berger underscored, what served us well yesterday may not continue to do so today, let alone tomorrow.⁷ We must continually seek improvements with an eye toward the future—specifically changes in technology—and consider what adaptations we need to make.⁸ Though we will continue to wage campaigns against current adversaries, the great power competition requires our strategy and way of thinking to expand at an accelerated rate to maintain relevance. In the same way that amphibious platforms project power in a hybrid manner, so should hybrid communications platforms operate in environments where the adversary does not distinguish between garrison and tactical networks and systems.⁹

The current operational environment, characterized by decades of warfighting in the Middle East, enables the connection of tactical and garrison workstations only to their respective platforms; there is no crossover between the two systems. To thrive in the information environment, MCISRE must have one interchangeable, hybrid workstation interoperable with any sensitive information system (compatible with either garrison prepositioned facilities or austere, tactical environments), under one network. Moreover, platforms must resemble characteristics of a thin

client, a cost-effective and risk-worthy workstation that runs from resources stored on a central server or a cloud instead of a localized hard drive, reducing encumbrance in weapons engagement zones.¹⁰

The MCISRE must recognize that modern operations, particularly distributed operations, require connectivity and access for success; therefore, creating a C2 system that facilitates high-tempo decision making is critical to our future combat capability.¹¹ Furthermore, with the increased requirement to process sensitive information, there has been a complementary rise in demand for information systems (both garrison and tactical). To answer this increased demand, the tactical unit must undertake the admittedly long and arduous task of submitting TOECRs and wait, trying to influence the approved acquisition objective numbers unchanged since 2018. Not only must the tactical unit contend with outdated and insufficient equipment, but it must also struggle with obsolescent methods to rectify those deficiencies. Currently, given that the TOECR process is the only sanctified means to alleviate these shortages, we must operate within these constraints. Moving forward with an eye toward the future, the MCISRE can no longer accept the inefficiencies inherent in antiquated legacy systems, concepts, and processes that inhibit progress—taking cues from the needs of its ranks, placing a greater emphasis on voicing those needs, and alleviating the unnecessary burden from warfighters in the information environment are central to the development of an integrated architecture for operations in the information environment.¹²

While force design focused on innovation is a great opportunity for the MCISRE, no new technology will solve the cultural issue at hand—the community's overreliance on high bandwidth communications platforms. Today, communications battalions within MEF command elements provide redundant and robust network architecture, including high bandwidth general services, upon which the intelligence and information operations rely heavily. The current MAGTF communications

systems provide eclectic arsenals with employment opportunities in electromagnetic spectrums extending across wide frequency ranges. Yet, in every training exercise, the MCISRE places the preponderance of its reliance on high bandwidth communications. These alarming viewpoints are not designed to negate the importance of having reliable and robust C2 infrastructure (systems, network, and qualified people) that can support high-bandwidth architecture. In the information age and with an inexorable accumulation of data, the ability to harness “big data” through cloud computing, automation, and artificial intelligence is paramount. Nevertheless, the issue is that the MCISRE is not only unprepared but also intransigent to conduct information operations using paths other than those that provide high bandwidth.

In the Marine Corps, while we have yet to fully develop a robust capability necessary to maintain advantages in the information environment across all seven warfighting functions, a further problem is the cultural resistance to the use of band diversity.¹³ This is partly because of the experiences that have shaped the intelligence community in the past. Over the last two decades, we have mastered the art of intelligence operations in an asymmetric environment, where relative military power, strategy, and tactics between belligerents differed significantly. The years of technological superiority and electronic warfare dominance we experienced have bred a culture of complacency in our strategy and tactics—predominantly our overreliance on high bandwidth for intelligence operations.

Operating almost solely on high bandwidth is based on two false assumptions. First, our networks are impenetrable. This quixotic and dangerous school of thought can eventually be achieved through quantum computing but requires a considerable leap of faith (remains out of reach for now). Second, our cyberspace operations (information networks, defensive cyberspace operations, and offensive cyberspace operations) and information operations capabilities far outstrip those of our potential, future adversaries. Ultimately, to



265X talent management requires a cultural shift and better employment to thrive in the next paradigm of information operations against the pacing threat. (Photo by LCpl Marcus Melara.)

operate and thrive in the next paradigm of operations against the pacing threat, we must understand information and train to collect, process, analyze, and disseminate it in any medium (systems operating on diverse electromagnetic spectrums) or form (voice, video, or data), whichever is most effective at a given time. Continued technological hubris among intelligence operators and leaders will render the community obsolete in the future fight against a pacing threat without a competitive C2 plan. Consistent with *MCDP 1, Warfighting*, what has been our center of gravity over the past decades of warfare has the potential to become a critical vulnerability that, when exploited (not if exploited), will most significantly negate our ability to operate and thrive in the information environment.¹⁴ The full implications and effects of over-reliance on high bandwidth remain to be seen in the years and decades ahead. What is certain, however, is that the MCISRE is at an inflection point in the history of the information environment. What we do to myriads of communications assets available to us today and their corresponding electromagnetic spectrums will impact the outcome of future information operations once subjected to the fog of war. We must exercise band diversity and remain versatile.

Finally, today’s 265X talent management requires a cultural shift and better employment to thrive in the next

paradigm of information operations against the pacing threat. As Gen Berger averred, everything starts and ends with the individual Marine, and all of our investments in force modernization are designed to unleash the incredible talent of our Marines.¹⁵ As the Information Age accelerates, manpower and talent management questions are still to be answered for those who are responsible for the sensitive network architecture. The 265X workforce historically responsible solely for the installation and operations of sensitive information systems is now responsible for a wide range of highly specialized and technical engineering duties. Some of these duties (integration of sensitive information systems and networks through automation, implementation of data engineering through data management, and information assurance through network security) require a significant amount of time and experience to master. However, the implementation strategy published in 2017 designed to recruit and develop the 265X community to level the additional requirements levied by the information environment is only a dream unfulfilled.¹⁶ As a result, during a three-year enlistment span, the MCISRE fails to gainfully employ these 265Xs to information operations, for which they were recruited. The average system engineer (upon completion of a training pipeline) executes perfunctory administrative IT duties which adds

little value to our combat capability. To make the 265X community most lethal, we must set conditions for them to focus more on warfighting tasks rather than special security or redundant administrative processes frequently performed by the Geek Squad services at a local neighborhood Best Buy. If the MCISRE seriously considers thriving in the information environment, we must alleviate unnecessary burdens through organizational reconstructing and enable the 265X community to hone their MOS skills most effectively—collecting data systematically, refining processes to make sense of the data collected, and leveraging the data for the decision space through best practices in data science and analytics.

Gen Berger has challenged us to consider adaptations we need to make in emerging technologies by continually questioning the status quo—a directive with clear applicability not only to the technology itself but also to the Marines who will operate that technology in support of information operations. As leaders, we must understand that the first element of C2 is people, and the rest of the system exists only to serve them.¹⁷ In line with the Commandant’s guidance, to fight and win in the information environment, it is imperative to reassess our talent management for the

best return on investment, especially when the Service does not have the tools needed to recruit the skills it wants and retain highly specialized talents.¹⁸

In closing, the MCISRE is at an inflection point; it must ready itself for competition against an adversary who is committed to an ambitious and explicitly stated national strategy of attaining global leadership in the information age. Here before our eyes is an information renaissance and its fallout. Recent history has revealed that companies that failed to take advantage of each new generation of technology ceased to be competitive, and without a culture that encourages innovation and risk taking, even the best thought-out digital transformation strategy will fail.¹⁹ The Marine Corps’ C2 capabilities could go the same way if not aggressively improved soon. As Sun Tzu stated, “if you know the enemy and know yourself, you will not be imperiled in a hundred battles.”²⁰ While the outcome of our gray zone competition remains uncertain, “knowing ourselves” by identifying critical readiness deficiencies, developing strategies to rectify those deficiencies, and tailoring our force structure to the future is well within our sphere of influence. We must forcibly overcome our cultural stagnation and act now to operate and thrive in the next paradigm

of information operations against the pacing threat.

Notes

1. Gen David H. Berger, *38th Commandant’s Planning Guidance*, (Washington, DC: July 2019).
2. Gen David H. Berger, “Preparing the for the Future: Marine Corps Support to Joint Operations I Contested Littorals,” *Military Review*, (Fort Leavenworth, KS: Army University Press, April 20210).
3. Ibid.
4. Charles Q. Brown and Gen David H. Berger, “Redefine Readiness or Lose,” *Wars on the Rocks*, (March 2021), available at <https://warontherocks.com>.
5. Ibid.
6. Ibid.
7. *38th Commandant’s Planning Guidance*.
8. Ibid.
9. Ibid.
10. Ibid.
11. Ibid.
12. Ibid.
13. Ibid.
14. Headquarters Marine Corps, *MCDP 1, Warfighting*, (Washington, DC: 1997).
15. *38th Commandant’s Planning Guidance*.
16. Headquarters Marine Corps, “26XX Occupational Field Professionalization,” (September 2017), available at <https://www.marines.mil>.
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19. Thomas M. Siebel, *Digital Transformation: Survive and Thrive in an Era of Mass Extinction*, (New York, NY: RosettaBooks, 2019).
20. Sun Tzu, *The Art of War*, (Boulder, CO: Shambhala, 1988).



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