

Joint Mission Control

From Component to Joint Leadership of All-Domain Missions

CAPT MATTHEW B. CHAPMAN, USAF
LT COL GERRIT H. DALMAN, USAF

The joint force can no longer rely on superior technology to maintain a competitive advantage against its adversaries. Rather, the American military's asymmetric strength must rely on its ability to command and control (C2) a plethora of multidomain capabilities faster and more effectively than the enemy. Robert Work, the deputy secretary of defense, who shaped the DOD's third offset strategy, called for innovative, human-centered solutions to re-establish an advantage.¹ A faster, more agile C2 battle management enterprise can create the advantage that achieves the third offset vision. The answer must be a joint solution, built to integrate and battle-manage multidomain effects at the tactical level. The Air Force is uniquely positioned to lead the multidomain battle management effort by developing joint mission controllers (JMC). Just as the Joint Terminal Attack Controller (JTAC) revolutionized joint fire support, the JMC could revolutionize multi-domain integration.

The JMC is a necessary position to integrate and leverage multidomain effects faster than an increasingly advanced adversary. In short, the JMC is an individual or team with the flexibility to operate from anyplace in the battlespace with proximity to and direct access to tactical edge networks. From a forward position, the JMC's role is to simultaneously and dynamically battle-manage the air, land, surface, subsurface, cyber, space, and electronic spectrum domains at the tactical level in support of the joint force commander (JFC).

Joint Integration—A Growing Need

From now on the enemy is stronger than you. From now on you are always about to lose... but you will win.

—Mazer Rackham in Orson Scott Card, *Ender's Game*

An illustration of joint mission control can be found in Card's 1985 science fiction novel *Ender's Game*. Card's antagonists, the alien "Formics," possessed tremendous decision speed with instantaneous telepathic communication capabilities, which they used to disseminate commander's intent and coordinate action. Like Ender Wiggin's challenge against the fictitious Buggers, the joint force faces enemies who can adapt and communicate

faster than it can. Today's adversaries leverage rapidly proliferating technologies to—almost instantaneously—access information and coordinate effects. The joint force can't afford to match every adversary's technological advancement at the scale of the full military, but by using JMCs to integrate joint capabilities faster and more effectively, the joint force can outperform adversary decision cycles to gain an advantage.

To realize this competitive advantage, the JMC must achieve three outcomes: increase the speed of quality decision making, integrate a broader range of capabilities at the tactical level, and achieve unity of command. Ender and his team were trained and equipped to use situational awareness through a combined operating picture and broad responsibilities and necessary authorities over all available effects. The joint force must develop its Ender Wiggins.

Future success will depend on the joint force's ability to select, train, and employ multi-domain battle managers. These leaders must integrate joint kinetic and nonkinetic effects faster than the adversary. Ender wasn't a practitioner of any particular weapon system. He was not a pilot or a cyberspace operator. Ender was a battle manager, and his weapons system was the C2 network.

A Struggle between Domains

In the late 1970s, the US developed a strategy to better integrate airpower into dynamic land maneuver. This was the precursor to the joint warfare emphasis in the 1980s, clearly instantiated in the Goldwater-Nichols Act. Air integration into dynamic land maneuver later became known as AirLand Battle.² Once the Cold War ended, the focus shifted to state actors with capable navies, such as China and Iran, and joint doctrine expanded to include Air-Sea Battle.

The current generation of department and service strategy documents envision integrated, transregional, and cross-domain operations. An increasing number of programs, demonstrations, and concepts exist to pursue such visions, but they exist, overwhelmingly, to address the operational level of war. In addition, most Air Force multidomain C2 efforts are constrained by defining *multidomain* as: air, space, and cyber.³ In the joint community, the preferred term *all-domain* demands a necessarily broader perspective. To operate “across regions, domains, and functions”⁴ will require coordination beyond just campaign planning to where individual effects are combined at the tactical edge.

This degree of integration and interdependence will require leaders with joint competencies who focus on the exercise of mission command over multicomponent forces at echelons below the JFC and component commands. In 2003, Lt Gen David A. Deptula, USAF, retired, similarly recognized a joint C2 gap, specifically for synchronizing air-domain kinetic effects when in close proximity to friendly forces on the ground. His answer was to create a joint position called the JTAC. The general's joint solution effectively filled a desperate need, so that the JTAC is now one of the most recognizable positions in the DOD.

The DOD is poised to make the next shift in integrating joint effects. This next era will build on and expand past the traditional two physical domain construct the JTAC so effectively integrated and will heavily rely on the cyber and space domains.

Just as JTACs continue to be vital to integrating air fires into land maneuver, the JMC will fuse diverse capabilities into necessary effects for a variety of missions. The JTAC was designed to integrate fires in close proximity to friendly forces. (see fig. 1) The JMC is intended to integrate effects beyond the close fight. (see fig. 2)



Figure 1. The JTAC was developed to synchronize air-domain kinetic effects when in close proximity to friendly forces on the ground.

Figure 2. The JMC is intended to integrate joint effects beyond the close fight. The USAF Control and Reporting Center, with access to multiple communication networks and radar feeds, is a potential operating location for a JMC.

Solving for Joint Mission Control

The JMC will be an all-domain combat mission qualification performing battle management functions of orient, pair, solve, decide, order, and assess to more effectively enable the joint team to achieve the effects of information dominance, decision superiority, and synergy among operations. The JMC will be a member of a team that is delegated joint authorities; better able to anticipate, adapt, and solve problems; manage information; and coordinate multidomain effects to achieve joint mission objectives throughout assigned missions, operations, or campaigns.

The JMC will provide operational commanders with improved tactical decision making through three mutually reinforcing advantages. First, they will increase the speed and quality of tactical decision making by overcoming barriers to trust and collaboration such that higher-level commanders can confidently delegate risk and decision authorities to the tactical edge. Second, JMCs will leverage superior access to joint resources through deliberate awareness, trained cognizance, and the ability to synchronize and sequence joint resources and capabilities. Third, they will increase unity of effort by averting service-biased perspectives in favor of a JFC objective-oriented perspective. Full-time JMCs will make and implement decisions faster, incorporate more collaboration between joint capabilities, and better align their effects to support campaign objectives.

Rapid Decision Making

Today, many modern technical and doctrinal trends have had the collective effect of slowing decision-making cycles. An example is the increasingly centralized C2 system. Technology has driven an increased demand by decision makers for more information from more sources. Simultaneously, that information is being leveraged increasingly by distributed, parallel, and collaborative teams that include more participants from more locations. Those flat organizational relationships have advantages, however, assimilating more information, and conducting more coordination inevitably takes more time without increased resources. Those two factors—more information and more participants—often compound each other and lead to even greater delays. As a result, decisions are often based on more information but are less timely. In addition, when engagement authority is retained above the tactical level and, further, when such higher authority is compartmentalized in separate domain commands, multiple approval processes must be completed, delaying the desired effects. This trend must be countered to be successful against future adversaries.

By implementing a JMC position, the joint force can increase the speed of decision making by delegating more decision authorities to the tactical edge. As a rule of thumb, the closer that decision authority can be delegated to the point of action, the better. General Deptula recently advised leaders to “delegate execution authority to the echelon with the greatest relevant situational knowledge and control.”⁵ Senior leaders are likely to retain authorities at higher levels when risk outweighs trust. Trust in tactical-level control, and thus the delegation of decision authority, can be developed by building the JMC to be the JFC’s trusted agent in the forward battlespace. In other words, delegating more authorities over all-domain effects to JMCs requires improved joint force competence.

Cross-Domain Effects

The modern battlefield has grown so complex that battle management from a single-domain perspective has become a significant limiting factor. This is due to the rampant expansion of both the variety of capabilities and the complexity of each. In addition, future wars will be highly contested and highly complex because the adversary will also attack from positions in multiple domains. This means the joint force must be able to defend and attack in multiple domains.

JMCs will be trained to break these complex battlespace problems down into complicated but solvable ones. Unlike career component leaders, JMCs will receive training on a wider range of joint capabilities, control networks, and the associated authorities required to wield them. A deliberate effort to divorce JMCs from individual service bias will also free them to assess available capabilities to generate desired effects more objectively. What is complex to a leader from a single-service background may be processed as merely complicated after the methodical development of competence and perspective.

Unity of Effort

JMCs must provide the ability to attack and defend from multiple domains simultaneously. Unity of command remains an enduring tenet of US military doctrine.⁶ Clear responsibility and accountability is necessary to ensure progress toward strategic objectives and is demanded by democratic governments. Some doctrinal trends and advancements in technology complicate the exercise of mission command. Organizations increasingly value lateral flow that can cause friction with structurally hierarchical military units. Technology enables higher-echelon staffs to micromanage tactical operations from rear headquarters, which can cause confusion at the tactical level when general situational awareness of the battlefield situation is lacking.

Since Goldwater-Nichols, the DOD has gradually become more comfortable with joint mission planning, but execution still takes place predominantly within service silos. The International Security Assistance Force and joint task forces around the world routinely plan jointly but still assign a lead component to carry out those plans.

Supporting and supported relationships are an outdated convention that limits the joint force's maximum potential. Supporting units make their own risk and resource decisions, often competing organic concerns against mission concerns. Supported units often have strong domain or service doctrine bias and either under- or over-utilize information and resources accordingly. Collectively, decisions are often degraded, delayed, avoided, or missed, to the detriment of the mission. Gen Joseph Dunford, chairman of the Joint Chiefs of Staff, has publicly advocated for integrated responsibilities over supporting and supported roles.⁷ To accomplish such integration, control at lower levels should always reflect a direct alignment with the overall campaign and strategy objectives. There is much to be gained by transitioning to a model of more dynamic relationships that promote interdependence and real-time sharing of responsibilities, authorities, and resources.

Truly all-domain battle management requires the seamless synchronization of information, maneuvers, and effects across space, air, land, sea, cyber, and spectrum. JMCs can integrate the domains by harmonizing component priorities. Because the JMC will have a clear understanding of JFC objectives and intent unclouded by competing component priorities and will not be distracted by force support responsibilities, they will be free to focus singularly on mission accomplishment in the battle. By moving the authority to reallocate, reroll, retarget, or retask all the way to the tactical level, missions can truly make the best use of available resources and emerging opportunities in line with the commander's intent.

Implementing Joint Mission Control

The increasing pace and complexity of battle demand the joint force make decisions faster and better integrate effects across all domains at the tactical level while maintaining unity of effort in alignment with operational objectives. Although the pursuit of these improvements can and will take many forms, career JMCs would provide a conduit for extending joint integration and interdependence all the way to the tactical level. The

DOD can select promising individuals early in their careers, provide them with specific training, manage career experiences, and develop flexible concepts of employment to integrate them when and where needed to helm its battle networks.

The DOD should shift the creation of joint-minded leaders below the operational level from a largely chance occurrence into a deliberate process. Currently, joint mission command at lower levels is invested in the only leaders available, service officers with limited training and experience integrating cross-component capabilities. There is a need for tactical level officers capable to receive all-domain authorities, perspective, and competencies from joint and component commanders. The challenge will be to select, build, and employ such capable company and field-grade officers.

Selection

Just as in any other key leadership position, selecting and caring for the right individuals will be essential to building a JMC capability. Candidates will be selected from the services based on demonstrated capacity to orchestrate tactical actions in support of grander objectives. Their careers will need to be partly managed outside their service of origin to nurture joint perspective.

Ideal JMC candidates will be managers of combat actions. Their function will be to coordinate, integrate, and direct weapons systems in battle, not sustain forces or care for troops. Therefore, candidates should be culled from service-identified joint combat arms rather than support career fields. They must be able to comprehend the relationship between tactical actions and strategic outcomes beyond the local level. In other words, JMC candidates must be capable of “playing both chess and checkers.”

This tactical and strategic relationship is similar to the model already employed in the special operations community. Special forces operators make tactical decisions with strategic implications. JMCs would fill a similar role in the conventional military arena. Evaluation tools to select JMC candidates may include strategic games with layered and open-ended victory criteria to determine those with a propensity for problem solving and decision making.

Training

The joint force must create institutional processes to build inherently joint battle managers to ensure success in future battles. Current career milestones, however, drive joint experience from a staff perspective, rather than a battlefield perspective. They also occur too late in an officer’s career to empower leaders at echelons relevant to tactical execution.

At the tactical level, commanders often lack joint knowledge, education, and experience so training is the key to the human component of the JMC concept. It is the means of growing the competence required to develop trust and make rapid decisions. The joint force needs leaders at the company-grade and field-grade officer levels who possess tactical equivalents to the JFC’s joint mission perspective, are aware of cross-domain threats and capabilities, and have deliberate integration skills.

Early in a career, time is usually spent pursuing mastery of a single weapon system. JMCs would require breadth over depth at the cost of a single weapon system or way of war, and they will learn how to put together many weapon systems. JMCs would hone joint command, control, and communication as their weapon system and their knowledge of capabilities on the breadth of joint capabilities rather than depth of individual weapons. Their weapon system will be the battle network rather than any one node.

JMC training would enable access to an ever-growing breadth of multidomain capabilities. This will include the land, surface, subsurface, air, space, cyber, and electromagnetic spectrum effects. More dramatically, global effects are becoming more accessible to local battles. Operationally responsive space is approaching viable cost/benefit balance. The procedures for offensive cyber operations are slowly normalizing as senior leaders gain increased experience and familiarity with them. Still, the misuse of these globe-spanning domains could have grave consequences. Their use, therefore, introduces considerations rarely taken into account in tactical actions in the traditional domains, such as attribution, second-order effects, unintended consequences, interagency, and industry coordination. JMCs will be trained to account for and mitigate such consequences.

JMC training will provide depth in the control systems necessary to generate and integrate the effects from their diverse capabilities. This emphasis on effects will enable a better pairing of capabilities to generate the desired results, and a knowledge of control networks will enable execution of desired pairings. The effective employment of these advanced capabilities will engender new levels of trust and further delegation regarding these options.

Employment

JMCs will operate organizationally at the Joint Task Force (JTF) or Joint Fires Cell (JFC) headquarters level. The JFC will maintain a pool of vetted JMCs that can be deployed as the JFC's representative to manage the execution of the multidomain, multi-functional battle, from whatever node is available and provides the necessary span and breadth of situational awareness and sufficient communications infrastructure. These nodes may include the air operations center (AOC), airborne or ground-based C2 platforms, an aircraft carrier, a JTF strike cell, or tactical operations center. Missions requiring a smaller team of JMCs or a single JMC could operate from an unmanned aerial vehicle control station, the back deck of a B-52 Stratofortress, B-1 Lancer, or the back seat of a fighter jet. This agility will permit forward-deployed JMCs to reposition as the mission evolves or to posture for the next assignment.

JMCs may be assigned to a component or operate independently. All component commanders should be willing to delegate mission relevant authorities to any JMC regardless of that JMC's assigned component. That allows a JMC to orchestrate all relevant resources in pursuit of any component's mission, operation, or campaign objective while fundamentally advocating for actions that pursue joint objectives and priorities.

Next, JMCs will operate using the JFC's delegated execution authorities. JMCs would be responsible for orienting and assessing friendly forces and have tactical control to integrate effects from the air, land, surface, subsurface, cyber, and space domains. These authorities would primarily revolve around positioning maneuver assets, directing sensors, and targeting kinetic and nonkinetic effects. In the air domain, JMCs would assign, sequence, and synchronize targets. In the land, surface and subsurface domains, JMCs would primarily target, deconflict, and integrate cross-domain fires. In the cyber and space domains, JMCs would synchronize the effects packages of cyber and space mission teams. Delegating specific authorities to control these functions will involve significant decision risk—the risk that a bad decision will be made.

For a JFC to delegate, a subordinate must be highly knowledgeable about the capabilities and limitations of assigned forces, the operating environment, and the mission. Using the specialized training and joint experience mentioned above, JMCs will reduce that risk and therefore garner additional trust from the JFC.

Authority over space, cyber, and other nonkinetic authorities are usually invested in specialized headquarters and require significant coordination to employ. When organization, doctrine, and planning allow authority for these capabilities to be assigned within a JFC, they should be delegated to the JMC, not component commands. Also, every effort should be made to simplify the JMCs request for approval chain. This includes minimizing the number of involved echelons and especially removing nonessential, lateral approval, or concurrence.

Joint Mission Control in Action

Imagine a future scenario with a JMC positioned in the battlespace battle-managing a dynamic targeting mission. This JMC can receive imagery cueing to a mobile priority target and respond by directing a reconnaissance platform to sanitize the last known area. With tactical-edge situational awareness, the JMC correlates the target as the same vehicle recently reported by an F-35 Lightning II. However, the JMC sees the F-35 is currently out of weapons. To complicate matters, the F-35 reports the target is on the move. Now, with a comprehensive battlespace picture, knowledge of the problem, and the JFC's delegated joint authorities, the JMC passes the information to a cyber mission team (CMT) who, using a known vulnerability in the suspect vehicle, halts the target when it arrives in range of a Wi-Fi hot spot.⁸ Once the JMC receives word from the CMT that the cyber attack was successful, the JMC directs the F-35 to reacquire the vehicle using on board sensors. The F-35 performs a target correlation, confirms the vehicle is halted, and passes coordinates. The JMC orders a fire mission from an Army Tactical Missile System and deconflicts the gun target line. The fires unit reports a time on target to the JMC who then requests an MQ-8 Fire Scout transiting the area to perform low-altitude reconnaissance for battle damage assessment. Finally, the JMC reports the mission success to higher headquarters.

Under today's construct scenarios like this one would take hours to accomplish. Even if the mission was preplanned, the timeline to clear each action through air, land, and maritime component authorities and joint cyber would be significant. These delays include the time it takes to communicate between each echelon, to replicate related messages across disparate communications methods, and the decision-making time required in each step of each process. In contrast, a JMC, trusted with joint and component authorities and empowered by improved communication, could dynamically employ a wider range of capabilities with increasingly internal rather than external coordination and thus greater autonomy and speed.

Ultimately, the JMC enables control to migrate from a single domain into an all-domain construct. To make this evolution possible, the joint force must place an emphasis on identifying, developing, and grouping talented operators; streamline C2 structures; and empower young tacticians to think and decide faster than the adversary. The joint force can no longer rely on the might of technological superiority. To win, the joint force must build a competitive advantage centered around human competencies.

“Look Down, Shoot Down”—Embrace the Inherently All-Domain Perspective

The connective tissue for joint and combined arms is who we are.

—Gen David L. Goldfein, USAF chief of staff (CSAF)

The Air Force is uniquely positioned to take the lead because “this thinking comes naturally.”⁹ The Air Force inherently understands the concept of a separate command and battle management element with different roles. A USAF commander does not lead his forces into every battle. Rather, a separate and specifically trained and appointed mission commander does. Therefore, the Air Force puts an emphasis on preparing those outside the unit command structure to make decisions. The next logical step is to empower these appointed officers with the authorities to tactically execute.

Serendipitously, the JMC concept outlined above aligns with two of the CSAF's top three priorities: developing joint leaders and multidomain C2. JMCs will be joint leaders and multidomain battle management takes a step beyond the USAF-centric multidomain C2 discussion into the realm of interdependent tactical employment of joint effects.

First, the Air Force must put a priority on tactical communications and C2 upgrades, especially linking existing C2 nodes across services. First among these should be increased network connectivity and bandwidth through line-of-sight IP networking between air, land, and sea nodes to enable more and faster collaboration. The USAF should also accelerate investment in security upgrades for C2 weapons systems and unit facilities to facilitate connectivity to intel sources and cyber and space mission teams that operate at higher classifications.

Second, the USAF should establish comanning linkages between organizations that constitute the theater air control system and the intelligence, cyber, and space communities.

Assigning cyber and space specialists to traditional C2 units now operating at appropriate classifications will enable education and planning for advanced multidomain integration and operations. Conversely, embedding career C2 experts into intelligence, space, and cyber centers will increase awareness of air domain needs, share procedures and priorities for information and control, and inform potential avenues for distributed mission execution. The Joint Surveillance Target Attack Radar System (JSTARS) provides an example of the benefits of such integrated manning. JSTARS crews, that include intelligence officers and Army combat arms specialists, often identify integration opportunities and achieve mission effects that would not have been pursued otherwise.

Third, the USAF should test a JMC-like position at major combat air force exercises as soon as possible. Exercise scenarios should be deliberately designed to require multidomain solutions and venues should be identified where all required multidomain resources can realistically train together (e.g., air defense artillery on an aerial range or JSTARS orbit that support armored maneuver courses). Concurrently, working position descriptions, objectives, and training should be developed. Invite joint kinetic and nonkinetic fires leaders to collaboratively train to, and execute, these scenarios alongside USAF certified mission commanders. For experimentation purposes, joint participants should be prepared to delegate significant exercise authorities to these mission controllers to validate and mature the concept.

Finally, the USAF should lead the joint force in institutionalizing joint mission control. Leveraging the lessons learned from exercises, this would include identifying career fields to fill JMC ranks, developing training requirements, establishing a skills code, and advocating for joint adoption and employment of JMC teams.

This is only the start of a conversation regarding joint mission control. The refinement of the JMC concept must be joint, but the Air Force is uniquely postured to lead the way. In an *Air & Space Power Journal* article, Dr. Jeffrey M. Reilly stated that “Airmen must have a clear and common understanding of maneuver in multiple domains beyond air, space, and cyberspace.”¹⁰ The JMC is a step toward a multidomain perspective.

Answering the Call

If you can't control it, you can't command it!

—Gen Hal M. Hornburg
Former commander, Air Combat Command

Airmen have been charged with providing the backbone of decision making for the joint force, and General Goldfein has accepted that challenge. Work called for the Air Force to support the Third Offset Strategy by “connecting the sensor and effects grids through a C3I grid.”¹¹ General Goldfein recognizes it is time for the Air Force to take up the mantle of next-generation warfare, committing the service to “bring it all together” regarding multidomain C2.¹²

As the youngest of the services, the Air Force has often played the supporting role to those services which can hold physical ground or control waterways. However, as the joint force enters the next era in warfare, moving to the multidomain mindset will mean success is heavily reliant on what the Air Force brings to the fight: advanced technology, flexibility, speed, and rapid mobility. This means the joint force must rethink what the USAF provides. The Air Force will no longer be the *supporting* service; the Air Force will be the *connecting* service.

The Air Force will lead the endeavor to connect and battle-manage all domains simultaneously. The opportunity to lead the way is now. The Air Force led the development of the last war's premiere joint position—the JTAC. Joint command and control down to the tactical level must not be neglected. Competent leaders empowered to make decisions and control joint resources are essential to integrating multi-domain capabilities. ❁

Notes

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Capt Matthew B. Chapman, USAF

Captain Chapman is the chief of weapons and tactics for the 606th Air Control Squadron, 31st Fighter Wing, Aviano AB, Italy. He holds a master's degree from Embry-Riddle Aeronautical University and a bachelor's degree from Middle Tennessee State University.

Lt Col Gerrit Dalman, USAF

Lieutenant Colonel Dalman is assigned to the Joint Staff at the Pentagon. He holds master's degrees from American Military University and Air Command and Staff College and a bachelor's degree from University of Alaska-Anchorage.