

A 1st Infantry Division battle captain uses Command Post of the Future during a division command post exercise 27 January 2016 at Fort Riley, Kansas. (Photo by Master Sgt. Mike Lavigne, 1st Infantry Division PAO)

Building Digital Lethality

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The staff's primary means to affect the battlefield is not with an M2 heavy machine gun, M4 carbine, or Bradley Fighting Vehicle. Instead, the staff brings to bear intellectual skills and experience enhanced by a mix of digital systems to aid the commander in the exercise of mission command.

While there are many differences between traditional lethal weapon systems and digital systems, a key distinction is that there has not been a program established for digital systems to take untrained individuals and train them to operate to standard as a crew, section, and unit. To remedy this gap, the Mission Command Center of Excellence (MCCoE) at Fort Leavenworth, Kansas, developed a framework of ten digital training tables. The 1st Infantry Division (1ID) took these tables and created a "digital gunnery" program that led to a drastic increase in the unit's ability to support the commander's exercise of mission command. The plan received strong command emphasis and fostered an environment that encouraged continuous and integrated digital systems use in training to prepare for operations. The training significantly enhanced 11D's proficiency in mission command

		Table	Operators	Training outcomes
Digital crew mission command digital master gunner (MCDMG) led	Level 1	I	Basic system skills	Setup, configure, preventive maintenance checks and services; operate; troubleshoot
	Level 2	I	Integration proficiency	Publish and subscribe to Data Dissemination Service
		III	Common operational picture development	Position location information filtering; staff estimates; brigade system collaboration
		IV	Battle management	Track brigade planned operations; react to developing events; execute brigade battle drills; develop storyboards
		V	Digital planning	Plan, prepare, and disseminate operation order; collaborative use between echelons; briefings
		VI	Digital crew certification	Executes battle management for current and future operations; validate standard operating procedures (SOPs)
nander and battle staff DMG coordinated	Level 3	VII	Commander/staff/digital crew (command post) integration	Unify team using collaboration of processes and digital systems
		VIII	Commander/staff/digital crew (command post) battle drills	Assess/reinforce employment of mission command information system (MCIS) suite in operations process and supporting synchronization meetings
		IX	Integrated command post assessment	Team successfully completes training program, evaluation, and certifies digital SOP
Comr MC	MCVE	Х	Command post mission command validation exercise (MCVE)	Sustained operations using authorized modified table of organization and equipment (suite of MCIS) executed through successive shift change iterations.

(Graphic by Col. Patrick Crosby, Mission Command Center of Excellence)

Figure. Ten Digital Training Tables

systems, which led to improved digital lethality and success during Warfighter Exercise (WFX) 16-04.

Each Army commander establishes a mission command system with five elements: personnel, networks, information systems, processes and procedures, and facilities and equipment.¹ When discussing digital proficiency, most immediately think about mission command information systems (MCISs) such as the Command Post of the Future (CPOF). Though these are a critical component of a commander's mission command system, they are only a small aspect of it. Equally important are the personnel that operate the systems and the networks that transmit the information (social and technical), the standardized processes and procedures that establish the framework for use, and the facilities used for operations. When integrated into a unit's training plan and administered by mission command digital master gunners (MCDMGs), digital gunnery provides the bedrock for certifying a unit in all aspects of mission command systems.

Background

Digital proficiency has a history of emphasis in 11D. In May 2013, the division published a plan to reorganize its joint operations center and establish Nonsecure Internet Protocol Router Network (NIPRNET) CPOF as the primary system used by staff and subordinate units to send reports and conduct briefings. This created an environment in which the unit used CPOF daily.

Over the course of the next year, the 1ID established an entire CPOF network on its NIPRNET.² This system significantly improved the division's digital proficiency in garrison, and that directly carried over during Operation Inherent Resolve (U.S. military operations against the Islamic State) in October 2014. However, the increased use of CPOF on a daily basis was not enough. Despite a high base proficiency with CPOF, it was clear that the division was not effectively integrating all of its MCISs. Operators of the other systems were working in discrete groups disconnected from each other, where they created specific data products for their functions, but they did not validate data integration with other information systems.

This problem was not unique to the 1ID. The Army designed programs to help units synchronize their mission command systems before exercises conducted at a combat training center or those led by the Mission Command Training Program (MCTP) at Fort Leavenworth. Of note, the Mission Command Systems Integration Team from the Program Executive Office Command, Control, Communications–Tactical provides training to establish command-post (CP) facilities, networks, and digital products in conjunction with an exercise. This program is helpful, but does not provide the tools or a framework to establish and run a unit training program.

To address this Army-wide issue, U.S. Army Forces Command (FORSCOM) mandated that units use MCDMGs and signal digital master gunners to designate digital crews and lead them through an integrated, three-level training program that ended with a validation exercise:

- Level I: individual skills
- Level II: integration proficiency
- Level III: mission command systems and staff integration
- Mission command validation exercise.³

Concurrently, the MCCoE refined its take-home training program created for MCDMG graduates. The MCCoE applied the FORSCOM guidance in its ongoing efforts to produce the digital gunnery tables.

The Training Tables

There are ten tables in the digital training program. Each table builds upon the previous table, starting at the operator level and progressing to the crew, the section, and then to the entire staff (see the figure on page 86).⁴ As the tables build upon each other, they gradually incorporate the personnel, networks, information systems, processes and procedures, and facilities and equipment. The figure illustrates FORSCOM's three levels and mission command validation exercises next to their corresponding tables.

Table I covers the basic system skills required to set up, operate, maintain, and troubleshoot the user's MCIS (i.e., CPOF, Advanced Field Artillery Tactical Data System [AFATDS], Tactical Airspace Integration System [TAIS], and others). An MCDMG or qualified MCIS operator for other systems may teach a refresher, but the initial training occurs at a local mission training complex or proponent school for each system (such as AFATDS at Fort Sill, Oklahoma, or TAIS at Fort Rucker, Alabama). Prior to integration into a team, this table certifies that personnel can use their information systems at a certain level of proficiency.

Tables II and III are instructor led. During training on these tables, soldiers learn critical skills such as MCIS integration, digital standard operating procedures (SOPs), and common operational picture (COP) development. Here, the personnel begin to work as a crew and learn how to achieve interoperability among systems. For instance, AFATDS operators determine how to validate that their fire support coordination measures transfer correctly from their system to the CPOF. Alternately, the CPOF operator learns how to publish graphics and verify that they are viewable on the other MCISs. Each of the information systems receives similar training.

For these systems to function correctly, the different MCISs require an active network necessitating the MCDMGs to work in close collaboration with their information management or signal officers and their signal digital master gunners. Both tables II and III present opportunities for the unit to teach MCIS operators how to create and share digital products according to their unit's SOPs.

In table IV, battle management, digital crews are responsible for executing, tracking, and managing battle drills, responding to critical events, and synchronizing resources. Next, table V requires digital crews to develop and distribute an operation order on the MCIS.

Tables VI through IX are designed to test, validate, and then certify the unit's SOPs, crews, and CPs with full staff integration. The digital crews provide

the necessary relevant information to staff and commanders to make decisions and give guidance.

Finally, the tables culminate with table X. This is the mission command validation exercise that confirms a unit's ability to configure and organize a CP to support mission Capt. Jonathan E. Stafford, U.S. Army, is a student at the U.S. Army Command and General Staff Officers Course, Fort Leavenworth, Kansas. He holds a BA from Pepperdine University and an MPA from Webster University. requirements where the staff can coordinate all phases of operations and accomplish all assigned tasks.

11D's Digital Gunnery: Results and Best Practices

Fort Riley's 1ID embraced the opportunity to work with the MCCoE to test and operationalize the digital gunnery tables. The division commander's goal was to complete all ten tables before WFX 16-04.

The division's knowledge management (KM) section took the lead in this effort; it established a cadre of MCDMGs across the division, synchronized the digital gunnery tables with the division's training schedule, and started conducting the tables in January 2016.

Before starting the tables, the division set out to train enough MCDMGs to efficiently run and manage the training. Working closely with the school, the division identified the right personnel to attend the course. Effective MCDMGs needed the competence to understand the systems and the confidence to lead their sections as they operated those systems. Additionally, they needed to have stability in the unit and represent all warfighting functions. Finally, the selected personnel had to complete training before the unit conducted table I.

Much time was spent determining the proper number and placement of the division's MCDMGs. It was ultimately decided that each section and warfighting function needed one MCDMG per shift and CP. At division level, this meant training twenty-three personnel. Brigades each needed four, with their battalions having two each. Overall, this created a requirement for eighty-seven qualified MCDMGs in the 1ID. The number may seem high, but this investment is critical for building digital lethality.

In addition to training MCDMGs, the Fort Riley Mission Training Complex helped develop an integration module as part of the basic CPOF course. This module introduced students to publishing information from CPOF and subscribing to data from other MCISs to create a holistic COP. Another week of training is under development that will cover four days of systems integration, the digital gunnery process, and a fifth day teaching the division's KM process. The additional MCDMGs and improved CPOF training continue to raise the division's baseline digital proficiency.

Next, the KM section created digital battle rosters broken down by crew. At the division level, each CP had a day and night crew. This gave the division six digital crews: day and night crews for the division main CP, the division tactical CP, and the support area CP. The crews in the division-level CPs were large because the integration of each information system from all the different warfighting functions was necessary to create a synchronized crew. Much like Bradley Fighting Vehicle commanders must train with a driver and gunner, each accomplishing their respective critical tasks for the system as a whole to work, the digital crew must train on and integrate their AFATDS, TAIS, and other information systems. If one of these systems is missing from the crew, the CP becomes ineffective. At a minimum, each crew must have one MCDMG.

Digital crews were presented at brigade quarterly training briefs to highlight their importance and the need for their increased stabilization. Next, the tables were applied to the training calendar in a way that synchronized them with already planned events. The division was preparing for its WFX and had a series of command-post exercises (CPXs) scheduled. Table I consisted of the core systems training completed at the Fort Riley mission training complex. Table II started in January 2016.

Digital gunnery was creatively integrated into other training events. For example, tables II and III occurred as part of the division's joint operations center, and table IV was carried out during CPX 2 between the joint operations center, the mission training complex, and the division tactical CP. Several make-up and retrain events were also included to ensure maximum participation. Table V, the planning table, occurred during orders production for CPX 3. Table VI took place during the CPX 3 communications exercise where each CP had to run through battle drills, COP updates, and briefings. MCDMGs evaluated tables VII and VIII in each CP during CPX 3. The division completed table IX during Warfighter 16-04's mini-exercise and finished with the mission command validation exercise (table X) during the WFX.

The digital tables provided the perfect opportunity to teach 11D's SOPs, as the MCIS operators learned how to manage battle drills, use tactical chat, send reports, and practice KM. Additionally, the tables went beyond the information systems and allowed for integration of the complete mission command system. The digital crews improved significantly at CP setup, which enhanced digital integration and promoted better synchronization across warfighting functions. The main and tactical CPs both saw significant refinement as the training and CPXs progressed. Changes based on these improvements were codified in SOP updates and incorporated into later digital gunnery events and subsequent exercises.

Personnel turnover was a significant issue at the division level, but engaged leadership helped enforce stabilization. For situations where stabilization was not possible, the digital gunnery plan incorporated retraining events after each exercise that provided opportunities to update crews on new SOPs as well as to integrate new members.

Additionally, not all members of the CP that operated an MCIS were able to participate in the training. To combat this shortfall, future iterations of 1ID's digital gunnery program will have a stand-alone training event for leaders that use CPOF but are not necessarily a part of a crew. This event will give individuals like the division chief of staff or the G-3 (operations officer) a refresher on CPOF and CP SOPs to ensure they have the necessary skill set to effectively operate and lead in the CP. This training will take no longer than ninety minutes, but it will give leaders the depth of understanding to execute and improve the unit's digital SOPs.

The investment of sending soldiers to the MCDMG course and spending the time to train on the digital tables significantly improved the unit's ability to support mission command. This digital proficiency translated directly to lethality, as the division was able to maintain synchronization with faster coordination and increased collaboration. All echelons benefited from an increased shared understanding facilitated by digital crew proficiency.

Two events during the WFX clearly showed the impact made by MCDMGs and the digital gunnery tables. First, the training enabled the division to jump (relocate) the main CP twenty-four hours earlier than scheduled. Digital crews were able to transfer portions of the their tasks to the crews in the tactical CP, sustainment area CP, and division artillery CP. MCIS operators ensured their counterparts had the right information and permissions to continue the fight. Personnel in the main CP were then able to disassemble their systems, conduct a tactical movement, and reestablish connectivity within fourteen hours. During this time, the fight continued as planned, even with the tactical CP losing 50 percent of their personnel in an attack.

Second, the division's ability to rapidly execute branch plans was facilitated by the cohesion of digital crews. The commander quickly published mission orders with effective graphics and other digital products. CPs were able to more rapidly receive, confirm, and then execute these plans thanks to the rapid coordination and collaboration that came with increased digital lethality.

Conclusion

The proficiency necessary to integrate, operate, and maintain today's Army mission command information systems requires command emphasis, continuous use, and a digital sustainment training plan. The digital gunnery tables developed by the MCCoE and operationalized by the 1ID are exactly the type of training program the Army needs. Flexible enough to integrate into the division's already planned schedule, they can be added to a battalion or brigade's training program. The digital gunnery tables—with qualified MCDMGs to lead them—provide the framework for developing digital lethality alongside the physically lethal systems.

CPX 1, completed before the tables, gave the 1ID a baseline and started the digital gunnery process with the goal of creating highly proficient CPs that used digital lethality to dominate during a culminating WFX. The progression from CPX 1 through the exercise was remarkable. Operators went from using their systems in independent but disjointed efforts, to creating specific digital products, to working in collaboration with other functions to create a truly integrated COP.

During the midpoint after-action review, MCTP observers highlighted the hard work the division had done to prepare for the exercise. Specifically, they emphasized the use and placement of MCDMGs as something that truly set the conditions for success. The digital gunnery tables created an environment where system operators stopped going to the G-6 (communications and network management) with MCIS questions; instead, they called on their section's MCDMGs, or soldiers who had completed digital gunnery, for assistance. The MCDMGs not only assisted in creating better digital products, but they also freed up the G-6 team to focus on a very robust cyber threat.



Army Press Primer on Urban Operations

Today, just over one-half of the world's population lives in urban areas. That percentage is expected to increase to 66 percent by 2050. In 1990, there were ten "megacities" of more than ten million inhabitants. By 2014, it rose to twenty-eight. And, by 2040, that number is expected to increase to forty-one.

With this ongoing and dramatic urbanization of the world's population, the U.S. Army is highly likely to find itself continuing to operate in cities. It is imperative that we study and understand the dynamics of operating in urban terrain. We must take the time now to analyze and test the lessons learned from different urban operations to ensure our soldiers and leaders are prepared for the future.

As a starting point, Army Press has compiled a selection of articles from *Military Review*, publications from the Combat Studies Institute, monographs from students at the Command and General Staff College, and other publications. This primer on urban operations should not be viewed as the textbook on the subject, but rather as a starting point for renewed study and conversation.



Access the Army Press Primer on Urban Operations by visiting http://armypress.dodlive.mil/primer-on-urban-operations/

Additional resources are available on the U.S. Army Combined Arms Center website: http://usacac.army.mil/taxonomy/term/32

Of note, this success was achieved with only a small portion of the staff completing the digital gunnery tables. Only sixty soldiers from all warfighting functions were able to complete tables I–X, but their ability to shape the success of the division was remarkable. Future iterations of digital gunnery will be conducted with much greater participation, resulting in an even larger increase in digital proficiency. As MCDMGs and their crews continue to build proficiency, there will be less reliance on field-service representatives for each of the MCISs.

Before the final after-action review, the division commander noted that until then, he had not been a part of a unit that so effectively overcame fighting itself during a WFX but instead focused its efforts on killing the enemy. Well-practiced internal processes, KM, and the efficient use of digital systems enabled this success. From the sustainment cell creating effective movement synchronization boards that streamlined the uncoiling of the division, to the future operations and current operations sections quickly implementing a conditions-based branch plan and mission order to enable the commander to seize the initiative, digital systems operators fully empowered 1ID's leadership.

The digital gunnery tables developed in partnership with the MCCoE and 1ID are extremely useful, *especially* when integrated into training at all levels.

Notes

1. Army Doctrine Publication 6-0, *Mission Command* (Washington, DC: U.S. Government Publishing Office, 17 May 2012), 11–12.

2. 1st Infantry Division's Nonsecure Internet Protocol Router (NIPR) Command Post of the Future (CPOF) concept of operation, dated 24 February 2014, with all supporting and background documentation found on the Intelink website, <u>https://go.intelink.</u> gov/t2Mblqk (CAC required).

3. Department of the Army, Headquarters, U.S. Army Forces Command (FORSCOM), Memorandum for Commanders, Major Subordinate Commands/Units Reporting Directly to FORSCOM, Army National Guard Bureau, Office, Chief Army Reserve and Army Service Component Commands, "FORSCOM Command Training Guidance (CTG)—Fiscal Year 2016," 19 October 2015, accessed 5 May 2016, https://fce.forscom.army.mil/FC-DocMgmt/ SiteAssets/Default.aspx (login required).

4. Patrick Crosby, "Mission Command Center of Excellence, Directorate of Training and Strategy" (Leader development presentation to the staff of the 1st Infantry Division, Fort Riley, Kansas, 14 December 2015).