Cross-Functional Maintenance Teams

Sustaining ground equipment in EABO

by LCpls Jonah Lucas and Hannah Obst, SSgt Charles Hobart, Sgt Lori Landry, Capt Aaron Barlow & LtCol Kate Murray

The changes called upon in the *Commandant's Planning Guidance* and *Force Design 2030* will have large impacts on our Marine Corps. As Marines, we are looking to operate with a smaller footprint as stand in forces or as a part of expeditionary advanced base operations (EABO).[1] The way to get from the status quo to a force capable of these distributed operations will take time and diligent effort. Ground equipment maintenance will be an enduring requirement regardless of divestment and investment decisions made in support of force design. The Marines and leaders of Engineer Maintenance Company, 2d Maintenance Battalion used these guideposts to frame the discussion of how to best tackle the maintenance problem set. Consensus tells us that the status quo is inadequate to meet the demands of the future operating environment, and we must be willing to take bold steps toward success. The Marine Corps will need maintainers capable of working on a wider range of equipment with limited communication or supervision. Opportunities for schoolhouse training on every individual platform will likely not be tenable. Rather, Marines will be trained on general systems, processes, and troubleshooting. They will be asked to engage critical thinking and problem solving to work on diverse sets of equipment, calling for a higher level of autonomy. Having a team of "problem-solving generalists" rather than "highly-specialized workers" affords the opportunity to "work with others across a broad spectrum of challenges."[2] The table of organization structure of EMC and other maintenance organizations has Marines of similar MOSs and skills working together in an environment that is stove piped and does not naturally lend itself to cross training. At EMC, maintainers are broken into two broad divisions of heavy equipment and utilities with several sub-categories and occupational specialties within the divisions. These distinctions can result in absence of maintenance production demand in a specific category of equipment based on employment variations. It has also been hypothesized that the over-management of maintainers causes idle time that could be spent more productively. The mission command philosophy—an agile framework—and a belief in the ability of Marines to find optimal solutions is central to EMC's quest for a better way of doing business

>LCpl Lucas is an 1142 Generator Mechanic with Engineer Maintenance Company, 2d Maintenance Battalion. In October 2020, he was assigned to Super Squad as a Generator Mechanic. After the merging of the company LCpl Lucas was assigned to 2d Platoon where he continues to advance his knowledge outside his MOS and help fellow Marines do the same.

>>LCpl Obst is an 1171 Basic Water Support Technician with Engineer Maintenance Company, 2d Maintenance Battalion. In October 2020, he was assigned to Super Squad as a Basic Water Support Technician. In March 2020 after the success of Super Squad EMC organized into cross functional platoons, he was assigned to 1st Platoon.

>>>SSgt Hobart is a 1341 Engineer Equipment Mechanic with Engineer Maintenance Company, 2d Maintenance Battalion. In October 2020, SSgt Hobart was assigned as the Staff Noncommissioned Officer in Charge for Super Squad. In March 2020 he was assigned to 3rd Platoon as the Maintenance Operations Chief.

>>>>Capt Barlow is a 1302 Combat Engineer Officer. He served as the Company Commander of Engineer Maintenance Company, 2d Maintenance Battalion from January 2019 to May 2020. Capt Barlow is currently pending assignment to Naval Postgraduate School.

>>>>>LtCol Murray currently serves as a Supply Officer, MOS 3002. She previously served as Director of Logistics, Marine Corps Base Quantico between July 2017-May 2018 and as Commanding Officer, 2d Maintenance Battalion June 2018-June 2020.

>>>>>>Sgt Landry is a 1341 Engineer Equipment Mechanic with Engineer Maintenance Company, 2d Maintenance Battalion. In October 2020, she was assigned to Super Squad as a Squad Leader and Platoon Sergeant. In March 2020 she was assigned to 3rd Platoon as 1st Squad Leader. In April 2020 Sgt Landry was assigned as Platoon Sergeant for recruit reception at Marine Corps Recruit Depot Parris Island.

in support of force design by making small, local changes that will have a large and lasting positive impact on Marines in support of force design.

Solution

Looking for alternatives to the current model, EMC set out to rapidly test ideas, increase learning through iterative low-risk tests, and make progress towards creating capability to meet the Commandant's vision. EMC utilized the agile scrum framework to experiment and rapidly test capabilities.[3] Rather than the traditional waterfall fashion, EMC began to immediately implement ideas in small, low-risk ways and increase learning through rapid feedback by organizing work in time defined sprints. This approach is consistent with both mission command and agile methodologies.[4]

A team of six Marines representing all specialties in EMC was assembled to test how effective Marines could be when operating independently and able to learn from each other while working on unfamiliar equipment. The team was composed primarily of junior marines with less than one year of experience in the fleet led by trusted a trusted staff non-commissioned officer and trusted non-commissioned officer. Emphasis was placed on the mission command concept, decentralization, and allowing these Marines to pursue opportunities and discover best practices on their own, with minimal hierarchical influence and focus on the autonomy of the team. The moniker "Super Squad" may have begun as sarcastic shorthand, but the name has stuck. After operating as a super squad for nearly three months, EMC has learned how to make this concept produce results for intermediate maintenance and myriad local challenges ripe for small unit leader solutions.

Maintenance Production

In January and February 2020, Super Squad conducted assist visits to ten distinct units from II MEF in the MIG, MAW, MLG, and division. EMC had 25 maintenance tasks during this two-month period. Of those, Super Squad made a direct positive impact on 17 of those tasks, placing their production at 68 percent of the company's total IMA production. Super squad also conducted 23 contact team tasks that lead to 6 requests inducted for IMA repair and 8 pieces of equipment being repaired on-site at the supported unit, reducing both transportation cost and wait times inherent with a physical evacuation for higher echelon maintenance. The Super Squad increased the Company's intermediate maintenance production by 25 percent despite employing under 15 percent of the population. This small team built momentum for the entire company's maintenance production, which carried forward into efforts at the battalion level as well.

Embracing Mission Command

The mission command concept lead to Marines seeking out opportunities to impact readiness outside the normal routines of EMC. They began to engage directly with supported units. Through this direct engagement, EMC learned that many units were either unsure of how to request support or would rather forgo the process altogether because they saw it as burdensome and unresponsive. As an example, a unit that needs support in the division would need to generate a request for a maintenance support team and send it to the battalion logistics officer (S4) for routing through the regimental S4, division G4, to MEF G4, down to MLG G4 before reaching the Maintenance Operation Section at 2d Maintenance Battalion for assignment to EMC for tasking. This has proven to be a lengthy process, but it serves an important purpose to prioritize resources and workload at the tactical level. Information on where maintenance support is coming from informs decisions regarding manning documents for deployments, units of employment, and potential force design decisions. However, Super Squad demonstrated that this information can be gained in stride. The true value that is added by a maintenance support team, maintenance contact team, or Super Squad is not seen by the supported unit until the Marines from maintenance battalion set foot on the deck. At this time, both supported and supporting Marines engage in mutually beneficial practices, including more in-depth trouble shooting, alternative courses of action for repairs, more diverse insight, and training beyond typical training and readiness standards. Too often, the perception of a cumbersome process to requesting maintenance support deters usage by supported units and leads to underutilization of external resources; specifically, mechanics at maintenance battalion have down time waiting for work. More efficient solutions for the employment of available resources with reduced management costs can be achieved by streamlining information flow and getting buy-in to prioritize work from the bottom up. Agile organizations place emphasis on customer collaboration. As Marines engage with supported units to identify and tackle workload, they can continuously push information to support decision makers and overarching resource management decisions. In this manner, the Super Squad was empowered with a bias for action and drive to be proactive problem solvers while still capturing data for decision makers.

Self-selection of tasks against known organizational priorities by teams will lead Marines to take on work that is within the capability of their team and not what those higher in the chain of bureaucracy think they should be capable of performing, unintentionally limiting or overextending productivity. This self-organization around work may also lead to more efficient use of resources and a more robust capability.[5] This is consistent with how work is selected and organized in the information age. Information regarding work to be done is shared with those capable and then workers self-select for work. This is to include complex tasks like transportation through ride sharing services like Uber. A large mindset and culture shift is required surrounding how we organize around tasks. When coupled with the mission command concept, this shift is critical to meeting institutional priorities and operational demands.[6]

Teamwork Problem Solving

The emphasis on the autonomy of the team led to natural interdependence of the members of Super Squad. With

little experience in all areas of work, the team had to rely on critical thinking and each other in the areas of each individual's strength coupled with their trained technical expertise. There is little evidence of social loafing in this small team setting as all Marines coalesced toward a common goal and wanted to succeed as a team. Marines from Super Squad gave uniformly positive feedback regarding their satisfaction with being a part of a small team with a common purpose. The Marines also felt more connected to the purpose of their work and the mission of the company and battalion as they saw immediate return on their time investments in the form of a satisfied customer who valued their efforts and engagement.

Learning Model and Growth

The progress of Super Squad was monitored closely and opportunities to learn and improve where kept on short, time-based sprints with rapid feedback. Suggestions for improvements were rapidly tested and implemented. In a short time, this team blossomed from just six Marines with limited capability into a high-functioning, entrepreneurial, and capable team. The team obtained organic equipment from their aligned parent organization, including General Mechanics Toolkits, HMMWVs for transportation, and computers to accomplish administrative work. Based on initial success, the team increased in size from six to fifteen Marines and afforded its own dedicated office space. Members of the team gained licenses for equipment, including HMMWV and TRAM to expand individual and team capability. A key process improvement was implemented establishing a distinct resource group in GCSS-MC to assign and document completion of tasks.

The model Super Squad provides gives opportunity to learn a wide variety of MOS functions with direct hands on experience. Marines strive to always be moving toward the next level, whether it be physical fitness or the ability to lead Marines. In the Super Squad setting, Marines are given the opportunity to not only better themselves within their MOS but also gain technical experience on gear to which they were not previously exposed while also offering their own technical acumen to others.

Force Preservation and Morale

As with anything new, several of the Marines were apprehensive and unsure of their role in Super Squad and how they would fit in under new leadership. Within a week, the initial six Marines were working hand-in-hand to accomplish the same mission without any "it's not my job" mentality. The team created a mindset of always wanting to learn something new. One Marine engaged on Super Squad began to feel so enmeshed in the team that they identified a reduced need for counseling appointment because that Marine was more engaged with work and enjoyed being part of the team. Another Marine has since been meritoriously promoted to the rank of corporal. Though not expected, these results are consistent with well-accepted research that people are happier when connected to their work and when they are granted increased levels of autonomy.[7] The emphasis placed on teamwork has already improved happiness and satisfaction; it is also expected to produce better leaders.

Way Ahead

This testing and experimentation happened largely in the greater Camp Lejeune area. There are additional issues that may arise when these cross-functional teams are asked to perform in a more distributed manner. Command and control (C2) and access to class IX supply support are two obvious factors that must be addressed. As this concept is further developed, we will have to develop C2 methodologies, in particular the heavy reliance on data required both for and from the Super Squad entity. Supply support in a distributed environment is complex, but there are encouraging developments in our additive manufacturing capabilities complimentary to the supply chain and potentially able to improve upon customer wait time with field expedient solutions. Mechanics and distribution experts will be critical enablers to refining this capability.

2d Maintenance Battalion will continue to experiment with cross functional maintenance teams, applying the concept beyond engineer equipment. The battalion will continue to learn and adapt as we do so. As force design decisions are made and the larger Marine force is reshaped to meet the needs of the future, we must continue to iterate this concept. Attempting implementation alone will prepare our Marines to be adaptable to change with diverse skill sets and with the capability to be leaders of the changes enacted. It is our belief that this is consistent with the Commandant's guidance provided in *Force Design 2030,* when he stated, "we must commit to a continuous cycle of learning and adjustment that ensures a margin of advantage over our adversaries."[8] Central to our approach will be continuing to keep mission command and agile methodologies central to our leadership philosophy and ethos.

Notes

1. Gen David Berger, *Commandant's Planning Guidance*, (Washington, DC: 2019).

2. Irving Wladawsky-Berger, "The Increasing Demand for Hybrid, 'T-shaped' Workers," *The Wall Street Journal*, (Nov 2019).

3. Jeff Sutherland and Ken Schwaber, *The Scrum Guide*, Creativecommons.org, (November 2012).

4. Arthur Corbett, *Mission Command*, (Quantico, VA: Marine Corps Warfighting Lab, 2020); Jeff Sutherland, *Scrum: The Art of Doing Twice the Work in Half the Time*, (New York, NY: Penguin Random House, 2014); and Headquarters, Department of the Army, "ADRP 6-0 Mission Command," (Washington, DC: May 2012).

5. Ori Brafman and Rod A. Beckstrom, *The Starfish and the Spider: The Unstoppable Power of Leaderless Organizations*, (New York, NY: Portfolio, 2006).

6. Arthur Corbett, *Mission Command*, (Quantico, VA: Marine Corps Warfighting Lab, 2020).

7. D. H. Pink, *Drive: The Surprising Truth About What Motivates Us*, (Edinburgh: Canongate Books, 2018).

8. Gen David Berger, *Force Design 2030*, (Washington, DC: 2020).