Improving Infantry Performance

Standardization through data analysis

by Capt Zach Basich

The Marine Corps infantry fails at quantifying its training performance and proficiency. Evident through after-action reports (AARs), strengths and shortfalls are not standardized between units and rarely become quantified into specific measures or values. Without standardized quantities of performance to analyze, the ability to improve an infantry battalion beyond the minimum standards is left to subjective experience and conventional wisdom.

The Power of Data Analysis

Anyone who has read the book or seen the film *Moneyball*[1] understands how collecting and analyzing data can improve performance. Tech companies such as Google, Facebook, and Netflix center their business models on data analysis. The Marine Corps already analyzes many areas to increase efficiency, such as wargaming, administration, intelligence, personnel, risk, and recruiting. Performance analysis will help to better execute the mantra of "doing more with less."

Currently, the infantry measures its capabilities based on the minimum standards to develop its training and proficiency. Marine Corps Training Information Management System (MCTIMS), the Defense Readiness Reporting System-Marine Corps (DRRS-MC), certification exercise Performance Evaluation Checklists (PECLs), and Service-level exercise PECLs capture training performance with phrasings such as "capable of …", "completed (insert training and requirement (T&R) task)." What if—along with these reporting criteria—the infantry were to analyze itself in a simi-

>*Capt Basich is an Infantry Officer and was a student at the Naval Postgraduate School. He is currently serving at Manpower & Reserve Affairs, HQMC, Quantico.*

lar manner to Major League Baseball teams?

One segment of the Oakland Athletics' analysis model emphasized on-base percentage, whereas scouts at the time emphasized the batting average as the important metric. By focusing on the results (on-base percentage) and not its mediating factors (batting average), the program made better-informed choices on signing contracts and determing the team's starting lineup. The management

> *… the infantry measures its capabilities based on the minimum standards to develop its training and proficiency.*

used many other metrics to increase the team's runs and decrease the runs of its opposing teams. This technique contributed to the record-setting winning streak in 2002.[2]

The infantry should use a similar method for its own improvement. Use the crisis response company supporting Special Purpose MAGTF–Crisis Response–Africa (SPMAGTF-CR-AF) as an example. The company completes all core T&R tasks before

converting to an unconventional task organization and trains to specialized capabilities. Their task organization includes six crisis response platoons capable of medium-machine gunning, combat engineering, helicopter rope and suspension techniques, the tactical recovery of aircraft or personnel, embassy reinforcement, riot control, and all communications capabilities expected of a company. The ultimate challenge involves sizing each platoon and its enabler attachments to fit into two MV-22 Ospreys capable of carrying a maximum of 22 Marines each. This is a tall order, and many commanders approached the problem differently, but no data collection occurred to predict which method works best. To solve this problem, a standardized certification exercise should be implemented. Within this exercise, standardized PECLs need to be designed with as little room as possible for subjective grading. From the PECLs, a database can be built with outcomes predicting the most effective squad size, scout/sniper value, engineer value, and possibly the best task organization for each type of crisis response mission: SPMAGTF-CR-AF can choose its "starting lineup" with confidence.

Analysis Coaching

Units leaving an integrated training exercise (ITX) receive only an after-action report (AAR) with little quantifiable analysis of their performance. AARs are effective at identifying specific events or decisions that were clearly failed or passed; however, they fail to quantify themes or trends of success and failure, leaving the unit unclear on how to best improve itself.

Picture the following scene in *Moneyball*: the players of the team learn how to "get on base" and why it is more important to get on base than it is to get a hit.[3] The infantry needs to replicate the Oakland Athletics' "get on base" mentality. Perhaps for the infantry, getting on base can be achieving effective suppression to maneuver. ITX debriefs could reveal specific deficiencies in logistics planning, communications techniques, or other factors that slowed the ability to achieve effective suppression. Proficiency becomes less ambiguous and not just associated with the amount of time to complete an exercise. An example of a possible analysis model could be the following: company live fire proficiency predicted by time to complete Range 400, machine-gun effectiveness (measured by average time to establish and maintain effective suppression), mortar effectiveness, platoon proficiency on Range 410A (measured by a similar model), ratio of shots fired to hits on target (gathered from the "pop-up targets"), or time as fire support team leader (time as weapons platoon commander). From this analysis, the "coach" can explain which metrics—such as improving a company's machine-gun section—are expected to raise the company's performance beyond the average. The coach can break down the areas of weakness through statistical evidence.

Where Do We Start?

The infantry must collect data in a standardized fashion. DRRS-MC, MC-TIMS, and AARs are great for what they were designed for—reporting and tracking. They are neither sufficient nor efficient at compiling data because they focus on the minimum standards and affect the unit commander and staff's fitness reports. Those systems still report effectively but have devolved into "check in the box" functions of training, causing exaggerated marks. To incentivize learning, performance analysis must be used as a coaching tool and not an evaluation tool. Marine leaders choose their profession to succeed at it, not to be evaluated in it. Enough evaluation and tracking tools are available; more coaching tools are needed to develop higher performance.

To begin analysis coaching, the Marine Corps should start with ITX to standardize data collected in a controlled, objective environment. From the lessons learned at ITX, analysis coaching can expand to other standardized exercises. By studying different units and their success rates in a standardized environment, an effective baseline of combat tactics will develop. Essentially, more techniques can develop, similar to a football coach developing new plays; the infantry's "playbook" will expand.

Data Compilation

By reducing training events into numbers, simple analyses can evaluate the effects at the unit or Service level. For standardized training events (MC-CRE, ITX, mountain exercise, TALON REACH, etc.), infantry collaboration with an analyst to develop quantifiable and specific PECLs will allow training to be evaluated in a standard form. Couple the PECLs with information available from current equipment such as computerized ranges with pop-up targets or multiple integrated laser engagement system equipment, performance in categories such as marksmanship, appropriate task organization, or weaponeering can be taken to a new level.

The key to any success in analysis coaching is to improve data collection. Overburdened with administrative requirements, mandatory training, or knee-jerk assemblies, the infantry fails at compiling useful data. It simply cannot handle another administrative task that will inherently fall to company executive officers and company gunnery sergeants. The administration of coaching analysis must remain transparent to the unit to remain effective and accurate. Ideally, scheduling the debrief or coaching session becomes the only burden to the unit.

With enough time and refinement to data collected, a database will develop acting as a library for statistical analysis to occur. The more data compiles, the more accurate the statistical predictions become. From the library, an analyst can compile an array of useful predictions specific to each unit. Possible Service-level predictions might include:
- Which training events correlate best to proficiency.
- Which specific T&R tasks need remediation to save time or resources.
- What effect removing or changing certain T&R tasks has on other prescribed tasks.
- The appropriate task organization of SPMAGTF-CR (how many platoons, squads, engineers, scout/snipers, explosive ordnance demolition techs, etc., are needed).
- The proper gear weight for types of operations specific to each unit.
- What effect geographic location has on proficiency (Camp Lejeune vs. Twentynine Palms).

These examples are only the tip of the iceberg. Data collection and analysis will aid in decision making. We can

AARs fail to quantify trends of success or failure. (Photo by LCpl Mackenzie Binion.)

We do not want exaggerated performance comments about a units capabilities. (Photo by 1stLt Tori Simenec.)

finally learn how to get on base more efficiently.

Tactics Are an Art, Not Just a Science

Making tactical decisions and planning with imperfect intelligence is an area data cannot perfectly address; however, this is not the intent. Using analysis will mirror sports coaching, not evaluating tactical decisions or plans. This should not be used to tell a leader how to crack the egg, but rather how well the egg cracked given their plan and resources. The statistics involved simplify proficiency into objective numbers and percentages. Back to *Moneyball*, the character Peter Brand explains to each player the pitches from which getting on base is most likely. He does not try to fix a player's swing or technique; he is arming them with the information to allow them to make the best decision possible.[4]

Manning

For this system to work, the analyzing staff *must* remain outside the chain of command of both those being evaluated and their leaders, with no requirement to report results to the leader of the unit evaluated. This system will fail if tied in any way to fitness reports. Like Section I of a fitness report, the system will devolve into inflated numbers and exaggerated performance comments deciphered by "what is not said." The incentive must remain a means to provide and receive coaching, not a means to evaluate for the reporting senior. An ideal analyzing staff will fall under a central headquarters in Quantico, VA, with no staff ties to its division, base, or MEF staffs. This eliminates the temptation to use the analysis staff as evaluators. Lastly, the staff should be large enough to analyze and debrief every standardized exercise at its respective location.

What about Commander's Discretion and Flexibility?

By avoiding any ties to fitness reports, analysis remains a coaching tool at all levels—from the MEF to the fire team. The commander's freedom to ignore or utilize the given information remains intact. Training plans can remain the decision of the unit, with advice from the analysts available. However, once established, the information available will be too good to ignore. The program compares well to a tutor proofreading an essay. The suggestions are available but not a requirement.

The Future

The future of warfighting seems to be cluttered with predictions of artificial intelligence or robot warfighting machines of some fashion. There is no doubt that technology will advance and further integrate into ground forces somehow. If the infantry collects more performance data now, then better decisions can be made on how to best integrate new technologies. Better analysis of experimental units with new technology arises because a solid baseline of performance already exists for comparison. The understanding of current social issues like female integration into the infantry becomes less ambiguous. Better recruiting characteristics surface. Ultimately, the infantry becomes better at a cheaper cost.

Conclusion

Uncertain war conditions lie ahead. The Marine Corps infantry's structure and purpose needs to be adaptable and effective. These future changes will cause friction or gaps in performance. To reduce friction faster, collecting performance data needs to start immediately. Analysts need to begin identifying the current baseline of performance to better implement and integrate new tactics, techniques, procedures, and equipment with accurate predictions of the results; they need to begin analysis coaching to improve infantry capabilities. Major League Baseball and tech companies evolved greatly in a short amount of time from data analysis. It is time for the Marine Corps to follow suit.

Notes

1. Bennett Miller, *Moneyball*, (Culver City, CA: Columbia Pictures, 2011) and Michael Lewis, *Moneyball*, (New York, NY: W.W. Norton & Company, 2004).

2. Ibid.

3. Ibid.

4. Ibid.

USMC