

Big Data, AI, and the 2651 Modernization

In layman's terms
by GySgt Brett A. Adams

If you have ever been a 2651 for nearly any amount of time, you have certainly heard the call. Whether the coffee pot no longer heats up or the NIPR network goes down entirely, the call is sounded, and a 2651 works to find a solution to the problem at hand. Although the phrase has become a subtle joke among the 51 community, it seems to cause angst in most of us—while simultaneously triggering a sense of pride forged by incessantly working as jack-of-all-trades while being expected to master them all. As many of us have experienced in the Operating Forces, mastery is rarely attainable, the training, repetition, and time to gain proficiency are always spread over a vast array of technologies and tasks. In this environment, the most versatile 51's seem to rise to the top, even though their knowledge and capabilities are often outmatched by their peers and even some of their subordinates. Likewise, the proficiency of the individual 2651 seems to vary greatly and is heavily influenced by billet and duty station.

Mastering the Trade

To gain proficiency and achieve a *standard*, we have to start limiting the scope of what 51s *actually* do. If we continue to be the jack-of-all-trades where technology is concerned, we may find ourselves stuck in a perpetual cycle of mediocrity. As long as advances in technology continue to outpace how we educate our Marine communicators, we are going to see the 2651 community continually falling further and further behind the power curve. To counter this, we have to break the cycle and begin working toward professionalizing our workforce *as a community*. To that

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end, our community has taken some of the first steps toward reaching that end goal. Right or wrong, the MOS will be going in a different direction in the very near future, and our community needs to be willing to embrace some change.

Professionalizing the Workforce

Improving our training standards. Our MOS roadmap, training and requirements events, and formal schools are all in line to see big changes in the next decade. While some of these items

indicative of how the 2651 community should go about training its workforce, it is clear there is significant room for improvement regarding our current training models. Those improvements are on the horizon, and we are working to implement many industry standards and disciplines into current and new training pipelines and courses.

Narrowing the scope. Although the Marine Corps model as a whole does not necessarily translate to the specialization we see in the civilian sector, we can certainly narrow the scope enough to allow individual Marines to become more proficient in specific job roles; enter the 2652, 2653, and 2659 MOSs. These MOSs are designed to provide individual Marines with specialized training, which will allow those individ-

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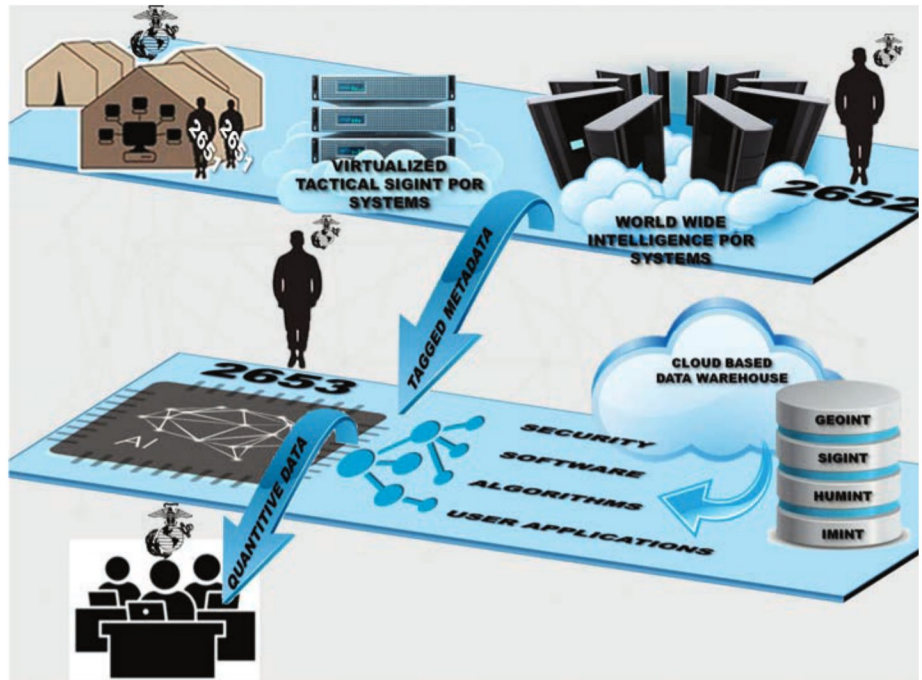
will be overhauled and implemented before others, all of these changes are vital to improving the standard of training our 51 community receives. From revamping and improving our entry-level formal schools to potentially creating completely new senior-level formal training courses, continued education has to be a priority for the community. Industry standards and qualifications should be at the forefront of a holistic training and modernization plan for our MOS. If industry leaders in data, communications, and technology are

uals to fulfill more specific work roles. Although each new MOS is specialized and focused, the work roles complement one another and are centered on achieving comprehensive computer and information systems (CIS) integration, operation, and development.

- 2651: Special Intelligence Communicator. In essence, the 51 job is still broad in nature and vague in practice. The 2651 will understand how to leverage communications resources and assets to best enable secure, reliable, and dedicated CIS architecture. In

short, these Marines will use and employ tactical radio and satellite communications equipment to support intelligence communications requirements. This journey also includes the facilitation of communications and coordination with external and adjacent units, systems, and technology integration. The 2651 will continue to be a jack of many trades; however, when coupled with collaboration and support from Marines fulfilling the 2652 and 2653 work roles, the 2651 has the potential to be much more effective. 2651s will continue to receive baseline training in entry-level schools as well as familiar follow-on courses such as Network +, Security +, the Incidental Radio Operator Course, the Advanced Radio Operator Course, and of course, the tried-and-true method of forging 51s by fire in tremendous amounts of on-the-job-training. Our community should strive toward expanding future training opportunities for enhancing these skills.

- 2652: Intelligence Data engineer. Data engineers will provide direct support to the Marine Corps Intelligence, Surveillance, and Reconnaissance Enterprise by enabling methods of vocabulary, taxonomy and ontology structures, and organized meta-tagging for intelligence data as well as managing local repositories and connecting to external data and cloud services. Essentially, the 2652 will understand who needs what data, what form they need it in, and how to send it to where it needs to be. These Marines are also data handlers, focused on tagging, sorting, processing, and distributing data so it can be used across the enterprise. 2652s assigned to this MOS will receive training in structured query language (SQL), MySQL, and Oracle databases.
- 2653: Intelligence Software/Security Engineer. The 2653 work role most closely resembles the type of specialization you would find in the civilian sector. These Marines design, develop, and enable software-based solutions to solve intelligence challenges across the enterprise. Ideally, the 2653 is capable of delivering tailored programs, applications, and software according to

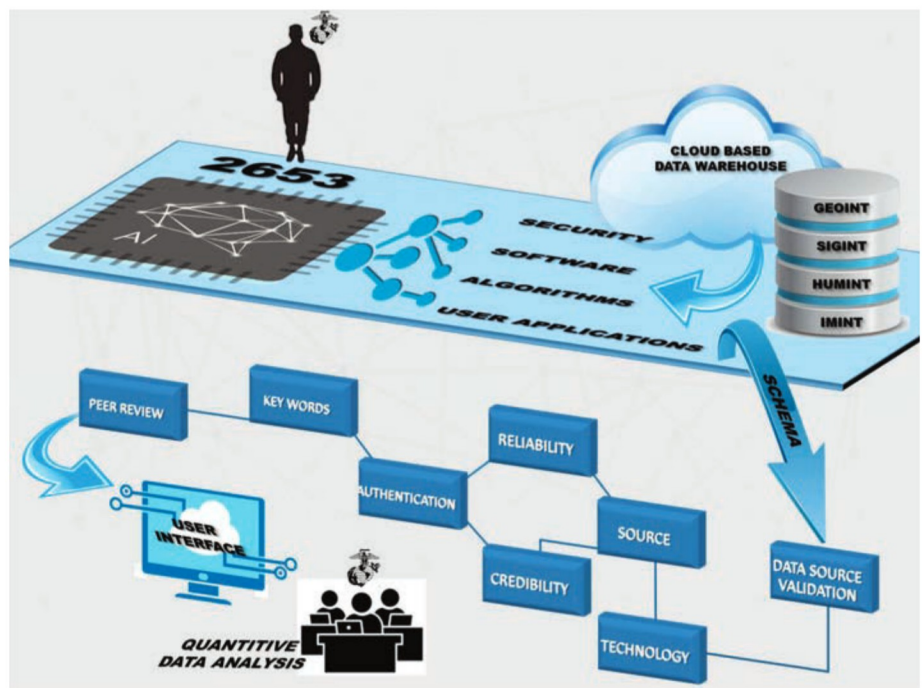


Future Joint Operating Concept outlining operational planes of the 2651, 2652, and 2653.

specific user requirements or needs. These one-off data solutions should provide for quantitative data analysis and ultimately give users the ability to incorporate hard numbers into analytical assessments. 2653s will need to be proficient in a variety of different

programming languages, to include (but not limited to) C, C++, Java, JavaScript, and HTML, to meet these requirements.

- 2659: Intelligence Technology and Data Chief. These Marines are deployed as subject-matter experts who



2653 software engineers implementing potential data schemas.

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focus on the integration of systems and software as well as coordination, planning, training, and the deployment of systems across the Marine Corps Intelligence, Surveillance, and Reconnaissance Enterprise. 2659s are senior-level advisors who understand systems architecture, security, policy, capabilities, and equipment needs. These data chiefs also understand the importance of activity-based intelligence and how intelligence and non-intelligence data and sources contribute to the multi-intelligence approach to building a common operational picture for the commander.

In Summary

I will be the first to admit that the proposed modernization plan is aggressive and far reaching. If you have kept a pulse on the quarterly 2651 newsletters, then you have probably read the articles or references mentioning things like data science, artificial intelligence, machine learning, and algorithms. These things sound like science fiction to many of us, and it is difficult to imagine a Marine Corps where 2651s, 2652s, and 2653s *actually* use these methods and concepts to do our jobs effectively. The Marine Corps already needs us to be able to use these methods and concepts to make sense of the overwhelming amount of information currently at our doorsteps. As a community, we have to find starting points that allow us to begin implementing some of these methodologies while still utilizing the program-of-record systems that we currently have in our inventory. Admittedly, most of our current program-of-record systems are not optimized for supporting tailored data storage and management solutions. Moreover, they cannot provide the kind of preferred development environment needed to create complex data solutions, software, and applications. Systems and solutions that allow for both of these are potentially years from being fielded. However, we can begin identifying the aforementioned starting points by challenging our community to look seriously at solutions currently available to us to tackle some of these data challenges. Additionally, at this stage of the game, the concepts and

models should receive the bulk of our focus rather than actual data solutions (or the lack thereof). If we as leaders challenge our Marines—especially the junior Marines and NCOs—We will begin to see what we have always seen from the 2651 community: the willingness to adapt, overcome, and figure out creative, outside-of-the-box solutions to hard problems. However, we must first stop looking at big data like a far-off problem that gets solved years down the road. We must take terms like artificial intelligence and *really* talk as a community about what they mean in the current operating environment. Most importantly, we need to talk about these concepts and educate and enable our Marines to come up with creative solutions to solve CIS challenges *today*.

In Closing

There are a million technical rabbit holes that open up as we begin considering how we can achieve the end state of 2651 modernization. As much as I would like to be able to speak to all of them, I am neither qualified nor capable of doing so. However, I do have the capability to continue to talk about the importance of modernizing and professionalizing the current 2651 workforce to prepare the next generation of 26XX Marines to handle the complex CIS problems that are undoubtedly in store. The 2651 modernization begins with educating ourselves, and our Marines, about not only where we are trying to go as an MOS but how we can empower every member of our community to help get us there. This article is one of many things I hope to contribute toward reaching that end goal, and I hope that 2651s will share this with subordinates, peers, and leadership to empower each of you, on some level, to do the same.

