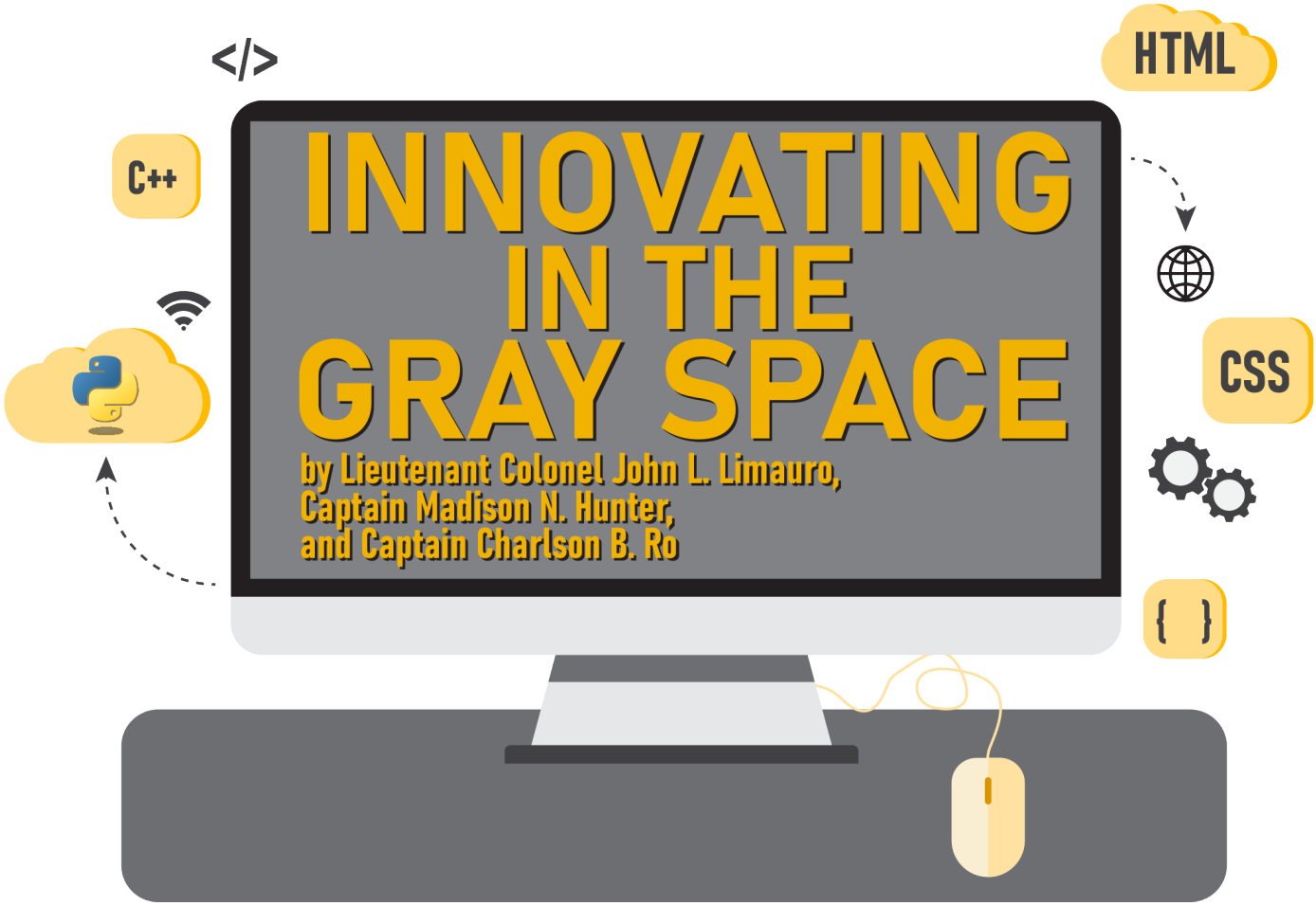

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Framework for Innovation

The October 2023 edition of FM 2-0, *Intelligence*, was a major step forward in how Intelligence professionals adapt and fight along with the other warfighting functions in the Army's multidomain operations warfighting concept. It acknowledges advancements in technology and references data literacy skills as imperative in addressing the volume of data in the future fight.[1] The release of this significant field manual, concurrent with the brutal escalation of the decades-long Israel-Hamas conflict, elevated demands on the 513th Military Intelligence (MI) Brigade-Theater (MIB–T) to adapt to the evolving needs of the Army Service component command and the operational theater. The brigade supported multidomain operations alongside U.S. forces and multinational partners while brigade leadership leveraged the workforce on hand and purposefully task organized. The result was an approach to MI problem sets focused on the data-centric capabilities and requirements of the MIB–T, such as a common operational picture, common intelligence picture, and knowledge management.[2]

Data training, including such skills as data comprehension, data manipulation, and data-driven decision making, are mission critical to the functions of a MIB–T.[3] FM 2-0 gives units the responsibility of incorporating data training into their annual training plans and encourages individuals to build their skillsets through self-development.[4] At the 513th MIB–T, innovation focuses on closing the skill gaps between these data requirements and Soldiers' existing skillsets. The innovation team emerged under the guidance of the brigade commander and assigned to the operations section (S-3), ensuring innovation directly supports operations. Fashioning a section in this manner requires the officers and Soldiers assigned to these projects to work outside of their modified table of organization and equipment (MTOE) billets–this is where we find the gray space.

Retired COL Joe Buccino describes this reality in his article "Innovation Overload: Army Units Are Drowning in Ideas." He offers "double-[hatting] to serve this intense focus on innovation"[5] as an argument for the dissolution of Soldier-led innovation elements throughout the Army. Indeed, units must make trade-offs when Soldiers assigned to one section are performing duties in another; however, the value these Soldiers provide when empowered through upskilling in data and software domains necessitates the existence of "innovation show [ponies]."[6]

After the Hamas-led attack on Israel on October 7, 2023, Soldiers of the 513th MIB–T tackled challenging problems as they arose. The team developed automation and solutions from the ground up that would otherwise take years of research, development, testing, and authorization to produce across the enterprise. Thus, we created a scalable and mission-focused framework for innovation centered on the MIB–T's data demands.

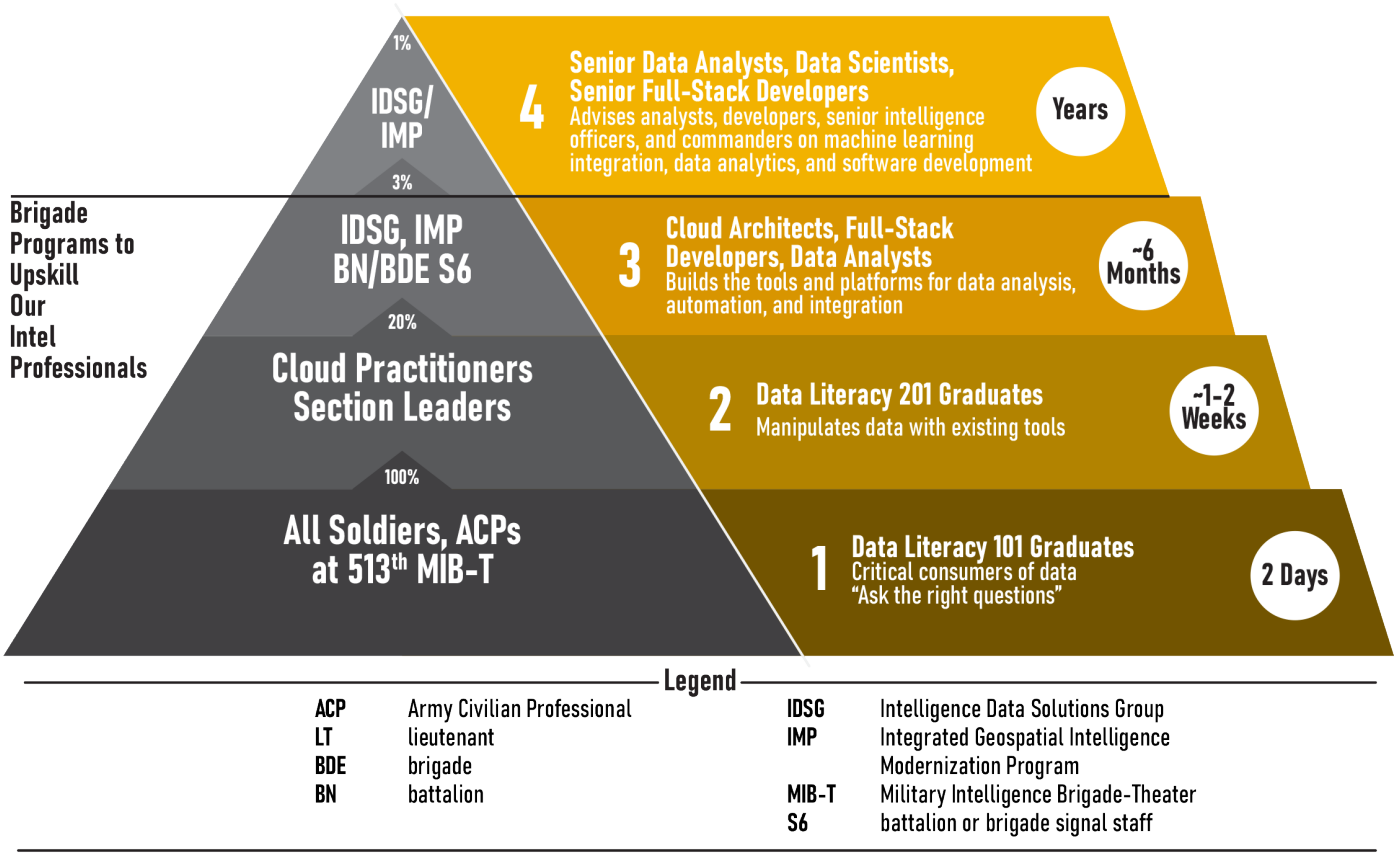


Figure 1. 513th Upskilling Pathway (figure adapted from original by CPT Madison Hunter)

Views on Innovation and Data Expertise Progression

Organizations need users and collectors who understand how to read, work, analyze, and communicate with data to incorporate artificial intelligence and enable advanced analysis. The 513th MIB–T views data expertise as foundational to innovating our problem sets. Data Literacy (DL101) is a course that lays the groundwork for increasing this data expertise. It serves as the basis of a pathway to upskilling in the brigade and drives a cultural change in how intelligence professionals use data (see figure 1).

The 513th MIB–T began hosting iterations of the two-day DL101 course in May 2022 to equip Soldiers and Civilians with this foundational data knowledge. The course aims to provide Soldiers and analysts with data literacy fundamentals they can apply when returning to their sections. For example, when analysts receive a priority intelligence requirement (PIR), they should know what data is the most valuable to answer the requirement quickly and accurately. They should also recognize what other data may be needed.

In response to the growing demand for DL101, the 513th MIB–T established a data literacy task force to teach and certify instructors. Instructors are typically section noncommissioned officers who understand the data their teams encounter daily. They use relevant examples like specific intelligence discipline data to bridge the theoretical to practical knowledge gap. The brigade strives for 100 percent of all Soldiers and Army Civilians to take this foundational course. Our colleagues address data literacy training and education in their August 2023 article "Take Ownership of Your Formation's Data Literacy."[7]

The next level of data expertise is empowering users who understand the capabilities of existing tools to maximize their use when responding to commanders' PIRs and friendly force information requirements (FFIRs). The 513th MIB–T covers these skills in Data Literacy 201 (DL201), which provides Soldiers with knowledge of the available tools to manipulate and work with data effectively. Many Soldiers have access to discipline-specific tools that effectively organize and analyze data, such as the Army Intelligence Data Platform for intelligence analysts and the Microsoft 365 Power Business Intelligence tool for human resource personnel. However, Soldiers often learn to use these tools on the job and understand just enough to meet their section's immediate daily requirements. This somewhat limited understanding can lead to inefficient processes and habits. DL201 consists of several courses driven by section requirements that teaches Soldiers how to make the most of these existing tools. Course offerings include—

- Database orientations.
- Microsoft Excel beginner to advanced.
- Amazon Web Services Cloud Practitioner Essentials.[8]
- Microsoft Power Business Intelligence and Power Applications.[9]
- Beginner Python.[10]

DL201 has several modalities, including online offerings, Foundry, and in-person courses taught by section noncommissioned officers. The 513th MIB–T aims for about 20 percent of the brigade to be DL201 certified.

Practitioners at the next tier (DL301) develop tools to answer PIRs and FFIRs. These individuals fully integrate software, data, artificial intelligence, and machine learning knowledge. Automating processes enables the units to adapt to a shrinking MTOE while increasing intelligence production quality. These users complete a much more intensive upskilling option that provides Soldiers in project teams the skills to build tools and platforms for data analysis and automation. Courses include–

- Amazon Web Services Certified Solutions Architect.[11]
- Galvanize Software Development Immersive.[12]
- Galvanize Data Analytics Immersive.[13]

The 513th MIB–T strives for about three percent of the brigade to be DL301 certified because of the length and cost of these courses.

Finally, the senior data analysts, data scientists, and full-stack developers are at the top of the pyramid. These individuals deeply understand industry knowledge and work within more restrictive environments such as classified networks. They advise commanders, Soldiers, and developers on pathways ahead and help overcome roadblocks. This background requires a level of knowledge and expertise beyond what the 513th MIB–T can teach in-house. Thus, the brigade strives to hire or recruit individuals who already possess this advanced training. These individuals deeply understand industry knowledge and how to apply these skills in restrictive environments such as classified networks. They advise commanders, Soldiers, and developers on pathways ahead and help overcome technical roadblocks.

Innovation Task Organization

Most innovation elements operate and are resourced at the division or higher level. The 513th MIB–T's innovation element operates at the brigade level, focusing the scope of our problem sets on teams of 5 to 20 users. Operating at the brigade level enables closer coordination between Soldier requirements and developers. It also allows developers to focus on workflows and to generate solutions for problems that do not affect a large enough percentage of the Army population to warrant high-cost, industry-level solutions. The brigade does not intend its solutions to be enterprise solutions. Additionally, funding limitations necessitate efficient resource management; therefore, innovation falls under the S-3, brigade operations staff, to maximize allocated resources.

As the commander's arm for planning and execution, the S-3 operationalizes the commander's vision and intent to innovate. The S-3 does this through the innovation officer, who works closely with project team leads. The 513th MIB–T project teams align skillsets to the focus of each project. There are six project teams organized into enabling and action groups.

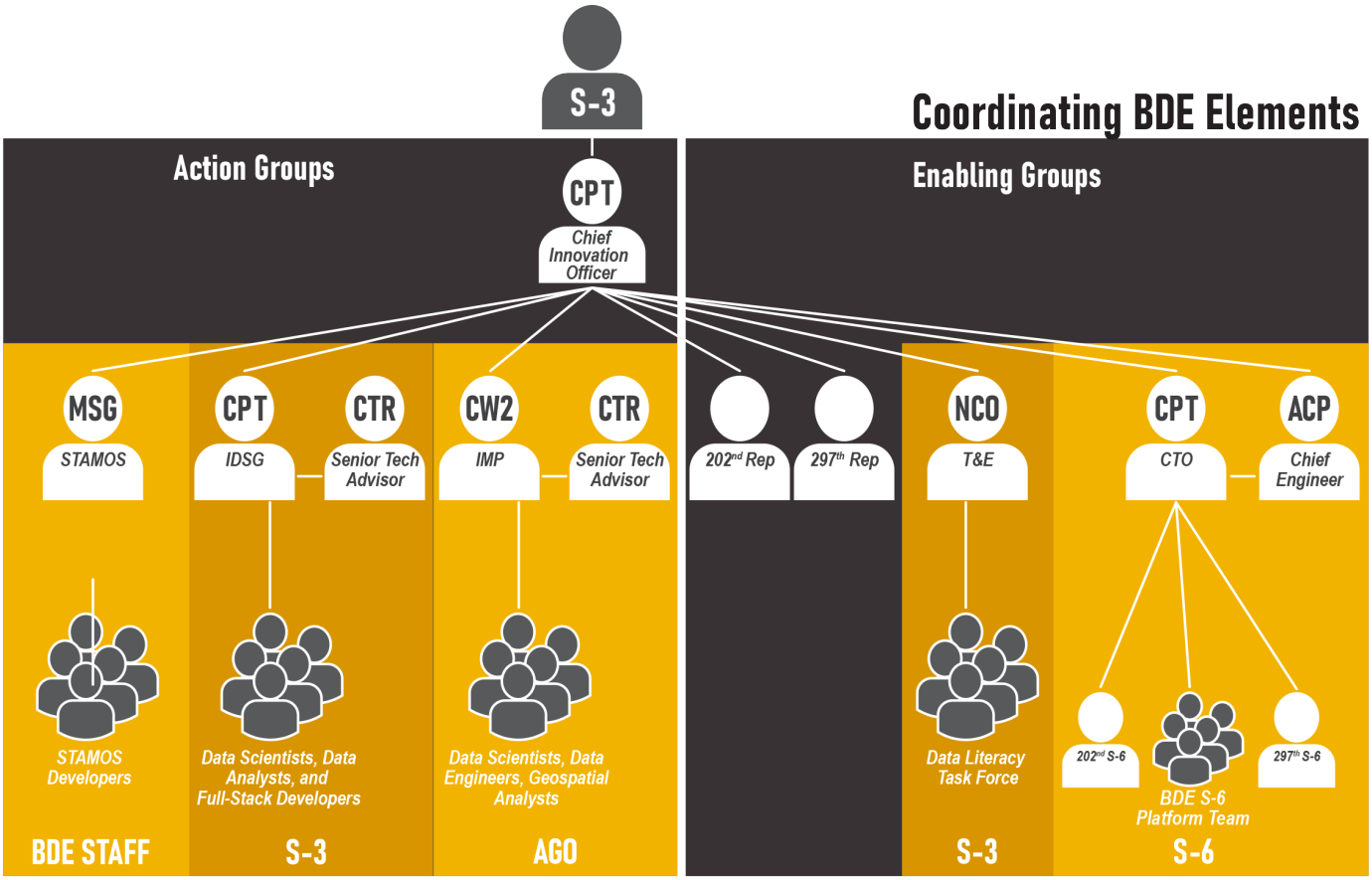
These teams house developers who create tools based on the needs of Soldiers conducting intelligence operations. These teams meet foundational requirements for innovation in data and software domains such as training and education, platforms, data storage, and computational resourcing. The action group includes the Staff Modernization Strategy (STAMOS), IDSG, and the Integrated Geospatial Intelligence Modernization Program (IMP). These teams house developers that create tools using algorithms and software based on Soldier and analyst needs, such as the IDSG and the IMP. The full-time team leads ensure adequate resourcing and management of innovation efforts by collaborating closely with the brigade's Chief Innovation Officer, who works within the brigade S-3 and aligns project teams with unit organic skillsets (see figure 2). While each section has unique capabilities, we will focus on the IDSG for a detailed discussion.

Intelligence Data Solutions Group

The IDSG comprises a team of software developers and a team of data analysts. In figure 1, the IDSG personnel occupy the third and fourth tiers of the pyramid alongside their counterparts in the IMP. Soldiers who are a part of the IDSG attend Galvanize coding bootcamps that are 12 weeks long. The IDSG program manager oversees project management and ensures that the team's efforts align with unit priorities and mission. In addition, the 513th MIB–T appointed the brigade's FA26B, Data Systems Engineer, as the platform lead responsible for building and maintaining the cloud environment and ensuring developers have access to coding environments. This position is organic to every MIB–T and does not require recoding a billet or moving a Soldier from one set of duties to another (see figure 3).

The IDSG has three focus areas, each with a designated section lead: advanced analytics supporting the intelligence process, intelligence workflow automation, and application development. These section leads work closely with the program manager to identify, understand, and determine the scope of problem sets. They also assign team members to problems based on background knowledge, individual expertise, and talent. The IDSG represents numerous intelligence military occupational specialties. For example, 35G geospatial imagery intelligence analysts work closely with the IGD team members on projects involving coordinate, terrain, and imagery data. The 352N signals intelligence (SIGINT) analysis technician, works closely with the SIGINT section to identify analytical needs and scope problems for projects (see figure 4).

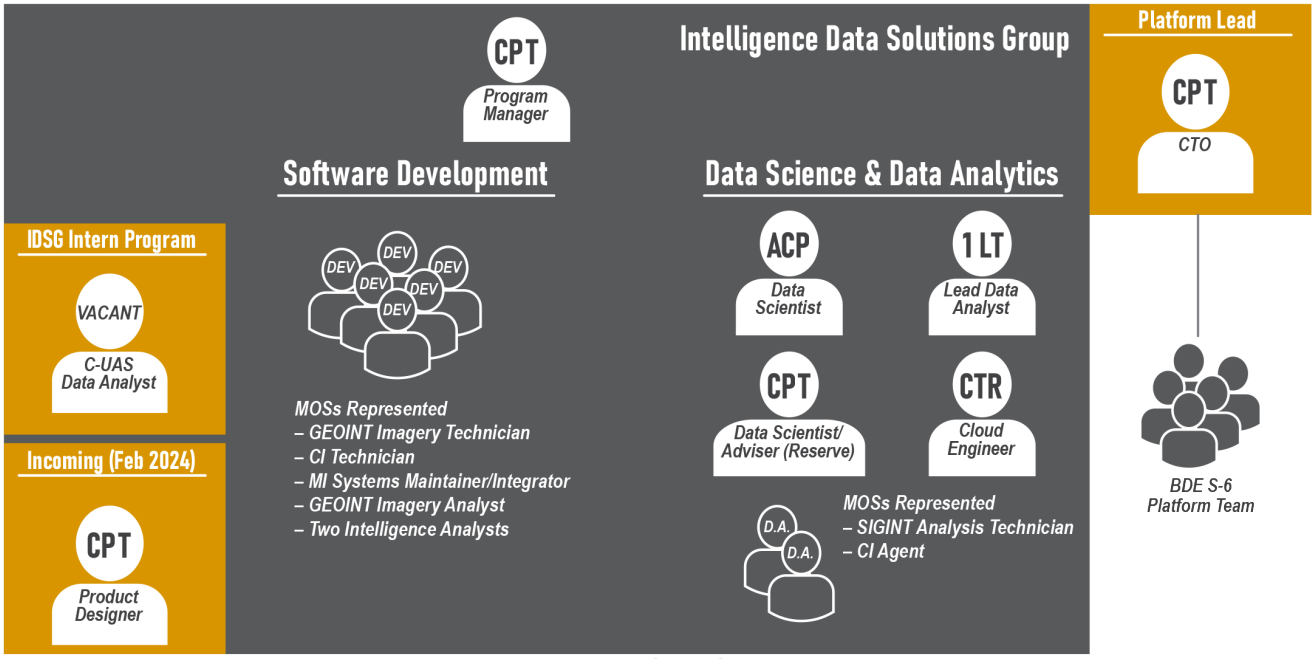
Projects generally fall within the three focus areas and must support mission requirements or provide benefit to the organization. Among these foci, intelligence workflow automation has been the most fruitful in generating solutions of immediate value to our analysts. Many processes within the intelligence enterprise have small userbases, and thus do not



Legend

ACP	Army Civilian Professional	**CW2**	chief warrant officer 2	**S-3**	battalion or brigade operations staff
AGO	Army Geospatial Intelligence Office	**IDSG**	Intelligence Data Solutions Group	**S-6**	battalion or brigade signal staff
BDE	brigade	**IMP**	Integrated Geospatial Intelligence Modernization Program	**STAMOS**	Staff Modernization Strategy
CPT	captain	**MSG**	master sergeant	**T&E**	training and education
CTO	chief technology officer	**NCO**	noncommissioned officer		
CTR	contractor				

Figure 2. Brigade Innovation Task Organization (figure adapted from original by CPT Madison Hunter)



Legend

1LT	first lieutenant	**CPT**	captain	**IDSG**	Intelligence Data Solutions Group
ACP	Army Civilian Professional	**CTO**	chief technology officer	**MI**	military intelligence
BDE	brigade	**CTR**	contractor	**MOS**	military occupational specialty
CI	counterintelligence	**C-UAS**	counter-unmanned aircraft systems	**S-6**	battalion or brigade signal staff
		GEOINT	geospatial intelligence	**SIGINT**	signals intelligence

Figure 3. Intelligence Data Solutions Group Task Organization (figure adapted from original by CPT Charles Ro)

receive enterprise-level software solutions. The intelligence workflow automation section's userbase may have Soldiers dedicated to tasks as simple as copying information from one platform or interface to another.

One example of this is the automation of monitoring equipment statuses. The status of critical mission-oriented equipment is typically a commander's critical information requirement because it provides intelligence value. Consequently, an analyst must monitor the equipment throughout the day and report promptly through other channels when equipment fails. The IDSG automated this process by creating a dashboard indicating equipment status in real time. This effort frees bandwidth for analysts who no longer must devote entire daily shifts to monitoring and reporting.

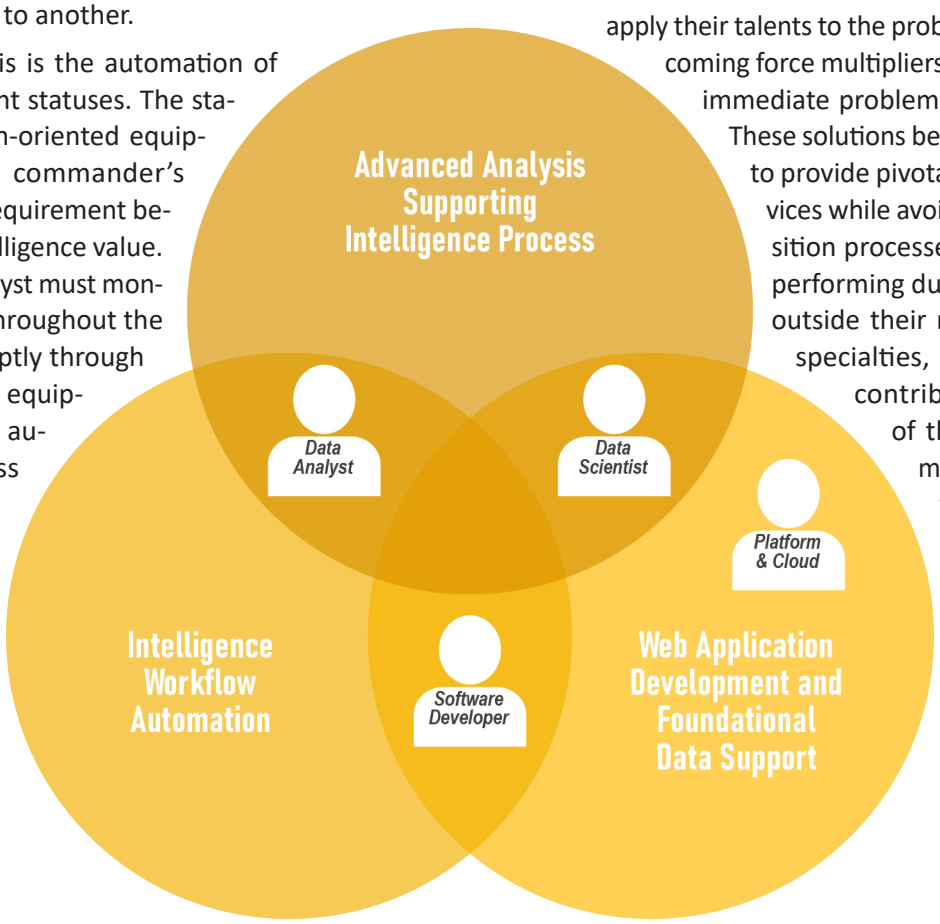


Figure 4. Intelligence Data Solutions Group Focus Areas (figure adapted from original by CPT Charles Ro)

In web application development, IDSG recently created a tool to automate the drafting of open-source intelligence reports. This effort coincided with intelligence workflow automation and allowed analysts to create more timely reports. The software, designed like a bibliography generator, is run locally by an analyst. It takes the necessary input fields from the user and creates a pre-formatted output that is ready to copy and paste. The tool saves about 30 to 60 seconds per report, which quickly adds up to hours saved as the volume of reporting increases. Currently, the tool saves approximately 20 hours each week for the open-source intelligence cell. The tool also expedites onboarding new personnel, enabling them to integrate into the team sooner.

For advanced analytics supporting the intelligence process, the IDSG took unlabeled data from the SIGINT section and developed an algorithm to identify the collection platform associated with each data point rapidly. The algorithm reduces by 15 minutes the time needed for an analyst to identify a collection platform, which translates to approximately 800 hours of labor saved each year. More importantly, it reduces the time for indications and warnings to flow from sensor to shooter, providing early warning and force protection capabilities. With algorithm deployment planning underway, this idea won the U.S. Army Central Command Ideas for Innovation challenge in October 2023.[14]

Initiatives like the IDSG enable Soldiers with unique skills to apply their talents to the problems facing them, becoming force multipliers. These Soldiers solve immediate problems at the lowest level. These solutions better enable the MIB–T to provide pivotal data and ingest services while avoiding expensive acquisition processes. Although they are performing duties in the gray space outside their military occupational specialties, their efforts directly contribute to the success of their teams' mission–moreover, programs like the IDSG open doors in the MI Corps for data-savvy Soldiers.

The MI Corps will undoubtedly be in a war for talent with other branches to recruit and retain technical talent. Both recruitment and retention require creative solutions such as additional skill identifiers and personnel development skill identifiers, especially for Soldiers with extensive schooling and experience. Establishing career pathway maps and progression is another option for retaining talented Soldiers. For example, the FA35B (Strategic Intelligence) career map allows all majors' assignments to count as key developmental assignments per branch guidance and DA Pam 600-3, *Officer Talent Management*.[15]

Conclusion

Commanders must make decisions regarding risks, specifically to the force and to the mission. Innovating in the gray space is no different. To ensure efficient and effective mission accomplishment, leaders must apply resources, talent, and time to each unit's innovation effort appropriately. This is where commanders at each echelon can task organize their formation for purpose as MTOEs and requirements change. Since October 7, 2023, the operational tempo for 513th MIB–T Soldiers has increased while the quantity of Soldiers in upcoming MTOEs has decreased. Innovation, particularly in the automation of routine workflows, enables a shrinking workforce to keep pace with the speed of operations. It is, therefore, critical to winning the next conflict. Deputy Secretary of Defense Kathleen Hicks stated in May 2023 that

innovating isn't about research and development dollars but about bringing a warfighting culture of operators, analysts, and technologists together.[16]

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CPT Madison Hunter is the innovation officer for the 513th MIB–T. She commissioned from Duke University in 2019 as a MI officer. Following the MI Basic Officer Leaders Course, CPT Hunter served in the 2nd Brigade Combat Team, 101st Airborne Division (Air Assault) as the assistant S-2 for 1st Squadron, 75th Cavalry Regiment and as the military intelligence company multifunction platoon leader, 39th Brigade Engineer Battalion, 75th Cavalry Regiment.

CPT Charlson Ro is currently attending the signal captains career course and formerly served as the lead data analyst for the 513th MIB–T, Intelligence Data Solutions Group. He commissioned from the U.S. Military Academy at West Point in 2020 as a MI officer. He earned his master's in business analytics from the Massachusetts Institute of Technology through the Lincoln Laboratory Military Fellowship following commissioning. After the MI Basic Officer Leaders Course, CPT Ro served at Camp Humphreys, Republic of Korea as the theater architecture and all-source fusion officer in charge for the 532nd MI Battalion, 501st MIB–T.