

# **Marine Innovation Unit**



## **Annual Report**

**FY 2023**

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*“MIU will support service modernization efforts by accelerating advanced technology development, creating resourceful approaches to RDT&E, recruiting and retaining top reserve talent, and providing additional capacity and capability to the force development process owner, DC CD&I.”*

**- MCBUL 5400**

## Executive Summary

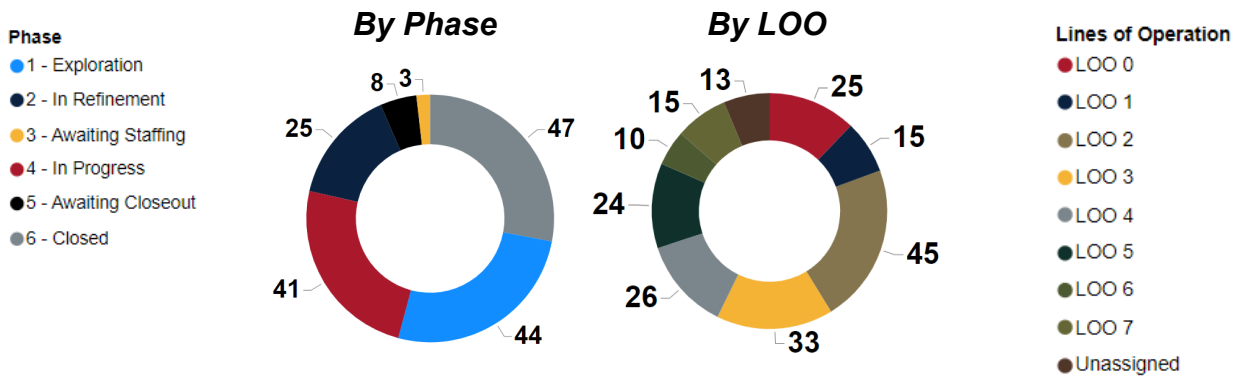
MIU focuses on projects, activities, or investments, otherwise known as engagements, that directly support Force Design 2030 (FD2030), Talent Management 2030 (TM 2030), Installations & Logistics 2030 (I&L 2030), Training & Education 2030 (T&E 2030) and Marine Forces Reserve (MFR) Campaign Plan 2030. The MIU actively working to support commands that seek assistance to implement the vision laid out for the entire Marine Corps.

In Fiscal Year (FY) 2023, MIU successfully completed the following milestones.

- ✓ Identified, pursued, or conducted 168 engagements supporting multiple commands across the Total Force.
- ✓ Joined and trained uniquely skilled and experienced Marines, with the total MIU staff now 319 Marines, with over 196 joined during FY23.
- ✓ Conducted a Defense Innovation Roundtable and Unit Activation Ceremony to symbolize the Marine Corps' renewed focus on innovation and experimentation.
- ✓ Expanded Liaison Officers (LNOs) network to 23 Marines across the Department of Defense (DoD) Science and Technology (S&T) enterprise to facilitate capability acceleration. MIU LNOs are currently supporting 18 external units and multiple projects.
- ✓ In conjunction with the Defense Innovation Unit (DIU), implemented Gig Eagle talent Management across the unit, identifying unique reservists' skill sets in support of the Joint Force.
- ✓ Began collaboration with NavalX in order to stand up a Navy equivalent reserve unit capitalizing on the special skills and talents resident within the Navy reserve.

### Total Engagements

# 168



### Defense Innovation Roundtable and Unit Activation Ceremony

The Defense Innovation Roundtable and Unit Activation Ceremony symbolized the Marine Corps' renewed focus on innovation and experimentation in support of the Total Force and was widely attended by key stakeholders from around the Department of the Defense and federal government. This event hosted approximately 250 guests with representatives from industry, finance, academia, state and federal government, and the Department of Defense to help accelerate the transition of key capabilities from the private sector to the national security sector.

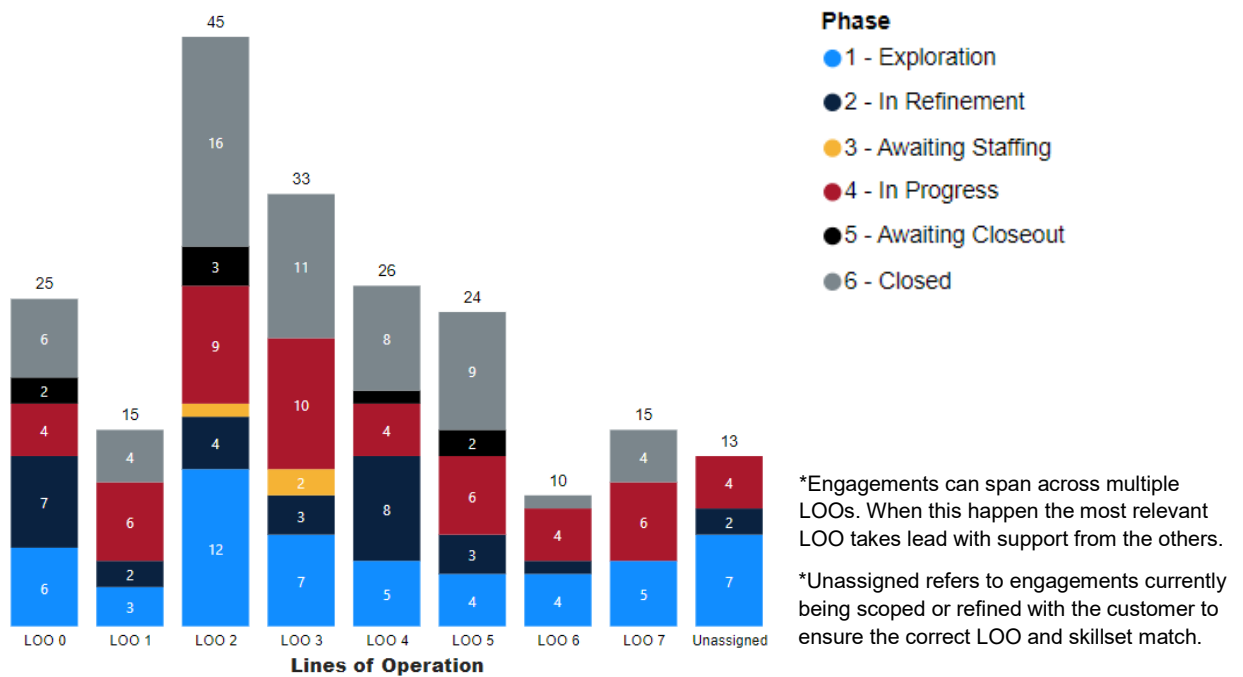


U.S. Marine Corps Lt. Gen. David Bellon, commander of Marine Forces Reserve and Marine Forces South, gives a speech during a flag unfurling and unit activation ceremony.

## Fiscal Year 2023 In Review

In FY23 MIU leveraged the skillsets of reservists by identifying, working, or completing 168 engagements centered around measurable outcomes that support the Total Force. MIU did this by refining its Talent Management processes and hiring an additional 196 Marines. MIU conducted one all hands annual training and one weekend of onboarding to increase knowledge of problem sets facing the Marine Corps and MIU internal processes, both of which are vital for Marines working asynchronously within engagement teams to deliver the best possible product to each supported command.

**FY23 Engagements by Lines of Operation**



## Objectives and Key Results

MIU had three objectives set in FY23. Through stakeholder engagement and rapid iteration of internal processes, MIU met or exceeded all but one objective.

### Objective 1: Meet Full Operational Capability Requirements (FOC)

**KR 1.1:** [Complete] Join and train 270 Marines (cumulative) NLT 30 Sep 2023

**KR 1.2:** [Complete] Join, train, and deploy 10 LNOs (cumulative) NLT 30 Sep 2023

**KR 1.3:** [Complete] Conduct 10 engagements that definitively accelerate a USMC capability NLT 30 Sep 2023

**KR 1.4:** [Complete] Conduct a Unit Activation Ceremony and Defense Innovation Roundtable NLT 30 Sep 2023

### Objective 2: Scale Engagements

**KR 2.1:** [Complete] Unit leverages an Engagement process and tracker NLT 15 Mar 2023

**KR 2.2:** [Complete] Unit leverages a Talent Marketplace NLT 15 Mar 2023

**KR 2.3:** [Incomplete] Individual engagement rate is >70% for IDT, ATP, ADOS for the FY

### Objective 3: Establish a metric & LOO-based, high-performing, impact-focused unit culture

**KR 3.1:** [Complete] Conduct Unit Training for all new joins NLT 15 Mar 2023

**KR 3.2:** [Complete] Create durable rituals and habits that reinforce our culture goals

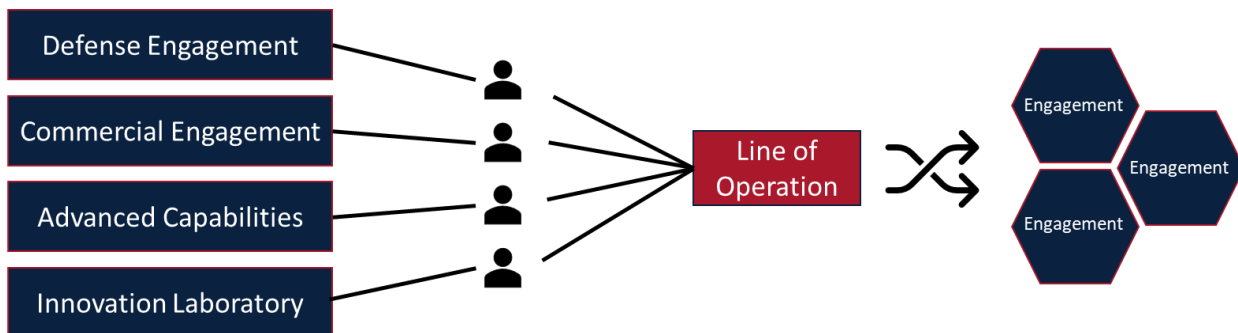
## Branches

MIU is organized into five branches: Headquarters, Commercial Engagement, Defense Engagement, Advanced Capabilities and Innovation Laboratory.

	<b>CEB</b>	<b>DEB</b>	<b>ACB</b>	<b>ILB</b>
<b>Function</b>	<ul style="list-style-type: none"> <li>Map industry players and maintain awareness of technological advancements in the commercial sector</li> </ul>	<ul style="list-style-type: none"> <li>Apply technology solutions to solve problems for USMC customers</li> </ul>	<ul style="list-style-type: none"> <li>Lead problem-solving engagements for strategically important USMC challenges across various functions</li> </ul>	<ul style="list-style-type: none"> <li>Provide direct support in priority and emerging technology areas to the Active Component as it relates to Force Design 2030</li> </ul>
<b>Composition</b>	<ul style="list-style-type: none"> <li>Autonomy &amp; Robotics</li> <li>Energy &amp; Materials</li> <li>Advanced Manufacturing &amp; Supply Chain</li> <li>Cyber Technologies</li> <li>Human Systems &amp; Synthetic Biology</li> <li>ML/AI/Quantum</li> <li>Space Technologies</li> </ul>	<ul style="list-style-type: none"> <li>Government R&amp;D</li> <li>FFRDC</li> <li>Intel Community</li> <li>Innovation</li> <li>Service</li> <li>International</li> </ul>	<ul style="list-style-type: none"> <li>Consulting &amp; Strategy</li> <li>Talent Management</li> <li>Experimentation &amp; Prototyping</li> <li>Acquisition support</li> </ul>	<ul style="list-style-type: none"> <li>Unmanned Systems</li> <li>Advanced Cyber Capabilities Development</li> <li>Advanced Manufacturing &amp; Supply Chain</li> <li>Advanced Sensing</li> </ul>
<b>Unique Talents</b>	<ul style="list-style-type: none"> <li>Data Analysis</li> <li>Project Management</li> <li>Commercial Talent Management</li> </ul>	<ul style="list-style-type: none"> <li>Networks in USG S&amp;T ecosystem, industry, venture, academia</li> <li>Experience starting/scaling USG S&amp;T and innovation organizations</li> <li>Project Management</li> </ul>	<ul style="list-style-type: none"> <li>Consulting &amp; Strategy</li> <li>Acquisitions</li> <li>Contracting vehicles</li> <li>Procurement</li> </ul>	<ul style="list-style-type: none"> <li>Cyber</li> <li>Coding</li> <li>Software Development</li> <li>sUAS</li> </ul>

## Lines of Operation

MIU supports the Total Force through its eight Lines of Operation. LOO leaders propose, pitch, and oversee engagements in support of various Marine Corps organizations. Each engagement team is cross-functional and task organized based on the Marines military and civilian skillsets (with a focus on their civilian experience). MIU LOOs support Force Design 2030, Talent Management 2030, Training & Education 2030, Installations & Logistics 2030 and MFR Campaign Plan 2030.



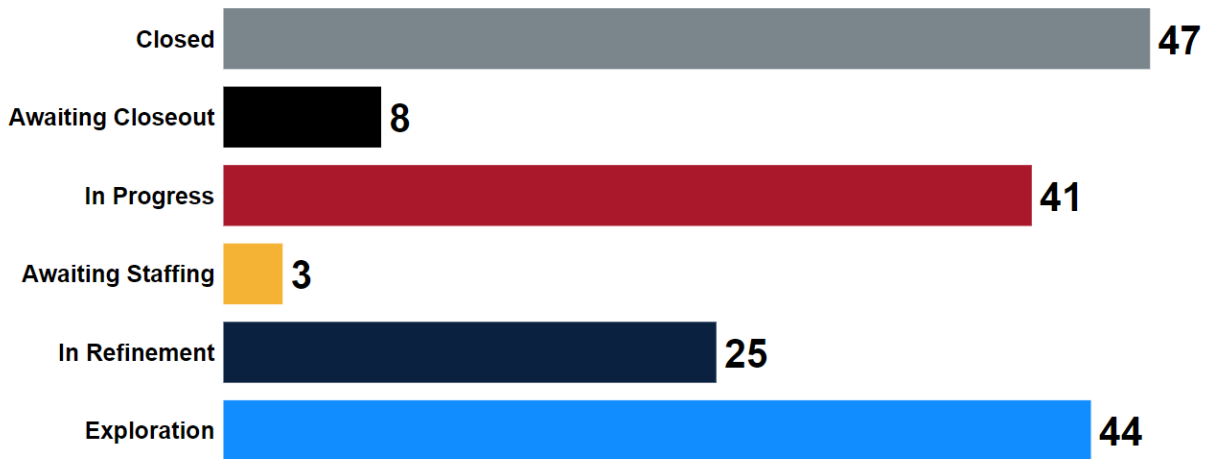
## Engagements

Engagements are projects and supporting activities that are staffed by a task-organized engagement team, combining the skillsets of Marines across MIU branches in support of MIU’s Lines of Operations.

### Featured Engagements

- ✔ Unit Activation Ceremony
- ✔ Defense Innovation Roundtable
- ✔ TMX Permeability Study
- ✔ MARSOC Critical Skills Operator Career Portal
- ✔ Cyber Yankee 2023
- ✔ Information Environment Battlespace Awareness
- ✔ MCICOM Energy & Installation Planning
- ✔ MARFORPAC Logistics Tools
- ✔ Advanced Manufacturing at ITX 4-23
- ✔ TECOM Unit Readiness Predictive Model MVP

### **FY23 Engagements By Phase**

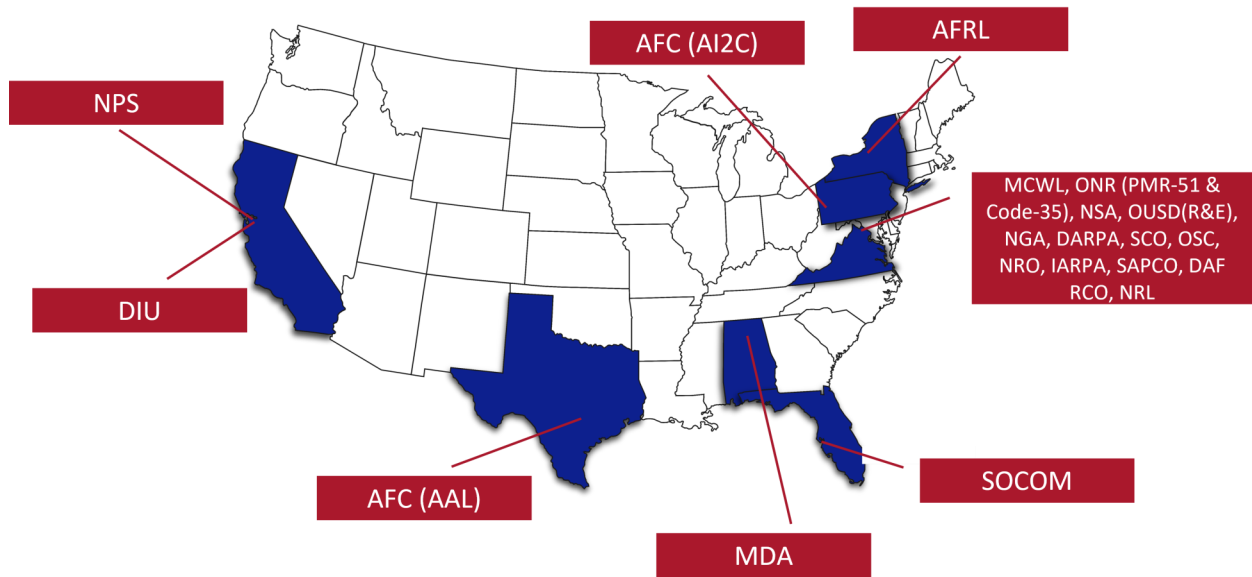


## Liaison Officers

The mission of the Marine Corps Warfighting Lab’s (MCWL) MIU LNOs is to accelerate capability development by identifying existing and emerging efforts across the United States Government (USG) and applying them to Marine Corps Force Design problems. These MIU Marines fill roles at USG and DoD S&T organizations on behalf of MCWL in support of Marine Corps equities. Within FY23, MIU hired an additional sixteen LNOs at key organizations within the Marine Corps and DoD, assisting to identify, track, and accelerate capabilities into the hands of the Marine Warfighter. LNO Representation at these key organizations ensured:

- ✔ Oversight of transitioning projects
- ✔ Consideration of USMC equities and capabilities in joint programs
- ✔ Guiding acquisition endeavors across the “valley of death”
- ✔ Searching for and finding projects and technologies of interest for transition to the Total Force

## Liaison Officer Network



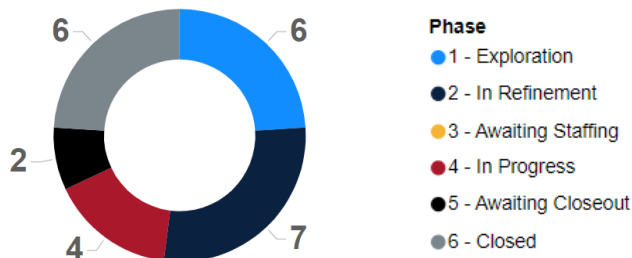
## Lines of Operation and Key Engagements

### LOO 0: Unit of the Future

The Unit of the Future LOO explores alternative paths to provide better efficiency to training requirements so that units, both active and reserve, can spend more time training and improving within their current job without losing the quality of training received. This LOO is dedicated to streamlining processes involved with accessibility, delivering, and tracking requirements.

### Total Engagements

**25**



### Key Engagement: Engagement Engine

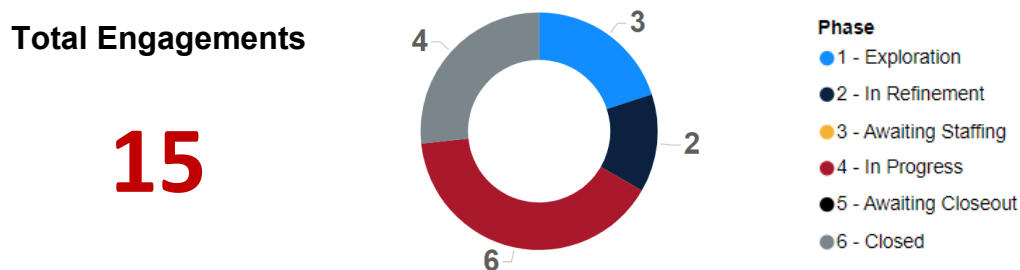
**Description:** In FY23, MIU developed processes and workflows that feed into an overall pipeline in order to receive, review, and approve multiple requests for support from units across the Total Force. This pipeline, known as the engagement engine, allows MIU to sort, classify, and rank needed support from and match these requests with the skillsets and manpower available within the given timeframe.

**Value Added:** Establishing the Engagement Engine allows MIU to track and identify the most needed areas of support from customers across the Total Force that informs MIU's Objectives and Key Results (OKR's), alignment on MIU's Talent Management hiring process, and Lines of Operation's in order to accelerate capabilities within the Marine Corps.

*"As a learning organization, we also perform internal reviews focused on process improvement... Continual improvement in our ability to perform organizational design will make the Marine Corps more agile." - Force Design 2030, May 2022 Annual Update*

## LOO 1: Talent Management

The Talent Management pursues new methods to recruit and retain Marines. MIU took an innovative approach to harness the unique talent in the reserve component to accomplish its mission. MIU collected and analyzed data throughout the application and hiring processes and these insights contributed to process improvement and automation to the greatest extent possible, saving time while maintaining quality during the process.



### Key Engagement: TMX Permeability Study

**Description:** Talent Management Strategy Group (TMX) requested MIU to assist in investigating methods to improve Marine talent pathways among both the Active and Reserve Components. Specifically, MIU was asked to study the Active Duty Operational Support (ADOS) pathway to support TMX’s process improvement recommendations of the ADOS program to Reserve Affairs and the Deputy Commandant, Manpower and Reserve Affairs.

**Value Added:** In addition to growing stronger partnership in investigating talent strategies with TMX, MIU identified four primary opportunities to improve the ADOS program as a key deliverable in this engagement.

### Key Engagement: MARSOC Critical Skills Operator Career Portal

**Description:** MARSOC requested MIU support for their Critical Skills Operator (CSO) Career Portal, a Microsoft Power App that will facilitate billet applications and assignments. This engagement focused on developing user personas and researching and documenting requirements. Additionally, MIU provided recommendations for implementing a Talent Council to select CSOs and potential expansion of the Power App to support Special Operations Officer (SOO), Special Operations Capability Specialist (SOCS), and Combat Support Service (CSS) Talent Management at MARSOC. LOO 1 foresees additional opportunities to support the refinement of MARSOC Talent Management processes (e.g., reservist employment) and/or overall data and IM/KM initiatives — particularly the unique requirements for interoperability between SOCOM and USMC systems.

**Value Added:** MIU captured requirements to inform future iterations of the CSO Career Portal and supporting processes. MIU aided MARSOC in giving insight to the CSO Career Portal stakeholders and their career journeys and delineated detailed requirements for these stakeholders.



## MIU Internal Hiring Process

MIU has had three cohorts of Marines over the lifespan of the unit, and each cohort has corresponded to a hiring cycle. In FY23, MIU hired cohorts two and three. With these two additional cohorts, MIU met and exceeded its objective of hiring 270 Marines by the end FY23 by forty six Marines. Over one third of MIU Marines joined from SMCR units closely followed by Marines from the IRR and one from the ISL. Over one fifth of MIU Marines came from IMA units, with the remainder evenly split among DAP, Active Reserve, Active Duty and Navy.

The Talent Management team continuously improved the talent acquisition procedures for both talent campaigns in the first and third quarter of FY23. MIU used JazzHR, a talent application tracking system, to set up a questionnaire and receive responses from applicants. These responses were used in conjunction with each applicant’s civilian resume, Master Brief Sheet, Reserve Qualification Summary, and last two Fitness Reports to assess their experience, skillsets, and overall fit for MIU’s problem sets.

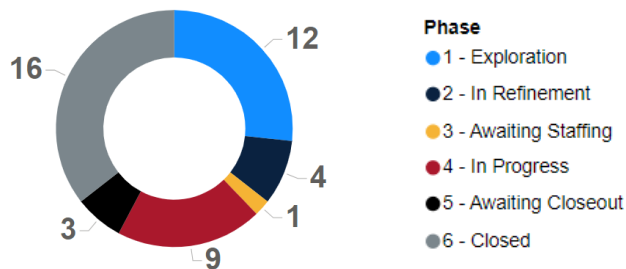
*“Talent management is the act of aligning the talents of individual Marines with the needs of the service to maximize the performance of both” - Talent Management 2030*

## LOO 2: C5ISR-T

The C5ISR-T LOO supports the digital transformation of the Total Force through projects including cyberspace operations, information operations, multi-domain command and control, coding, and software development.

### Total Engagements

45



In FY23, the C5ISR-T LOO stakeholder organizations include but are not limited to:



## Key Engagement: Cyber Yankee '23

**Description:** Cyber Yankee is a large-scale, unclassified cyber exercise focused on training cyber operators and industry partners how to defend from, respond to, and recover from an attack on our critical infrastructure. The exercise was held at Camp Nett in Niantic, CT from 14 May to 27 May 2023. MIU supported Cyber Yankee by sending two Marines to serve as Red Cell technical experts and exercise scenario control.

**Value Added:** In addition to growing stronger working relationships with Regional National Guard cyber leadership, US Cyber Command, and Marine Defensive Cyber Operations units, MIU served as senior technical advisors to the Red Cell and coached the various Blue Teams on how to better defend their networks.

## Key Engagement: Information Environment Battlespace Awareness

**Description:** Deliver a strategy to support Systems Command’s development of a program of record for information dominance.

**Value Added:** MIU conducted an extensive market survey across all DoD and the Intelligence Community for existing publicly available information tools. Working in a cross-functional team with the Defense Innovation Unit, MIU supported Marine Corps Information Command and Systems Command and found a way for them to commit \$1.2M in funding to develop new prototypes that leverage emerging artificial intelligence capabilities.

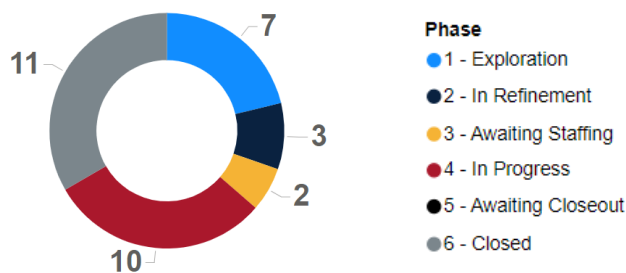
*“Prioritized investments... An expeditionary C5ISRT/counter-C5ISRT Naval grid that can operate when national connections are lost or degraded.” - Force Design 2030, May 2022 Annual Update*

## LOO 3: Data Management & Integration

In FY23, MIU's Data Management & Integration efforts expanded from the previous year's focus on the Service Data Office to include new engagements aligned on the themes of Data Literacy and Data Readiness.

### Total Engagements

33



These engagements included an intensive data analytics training engagement with 2nd Marine Logistics Group, an ongoing effort with Training and Education Command G-5 to identify and build curriculums around data literacy resources available at no cost from Air Force and Army partners, and a technical consulting engagement with PMA-266 to accelerate the development and delivery of Smart Sensor capabilities to Marine Unmanned Aerial Vehicles squadrons for the MQ-9 platform. The objective for these engagements was to enlarge the scope and impact of LOO 3 activities, generate a greater volume of LOO 3 engagements, and diversify LOO 3 focus to operational units and capabilities. In parallel, LOO 3 sought to increase interpersonal network connections with current and potential customer organizations across the Total Force, further expanding the scope of engagement discovery and casting a wider net to identify and pursue high-impact engagement opportunities. In CY24, LOO 3's new emphasis on operational capabilities in support of near-term Force Design 2030 objectives will continue, with the goal of scaling successful proofs of concept for data-centric engagement models.

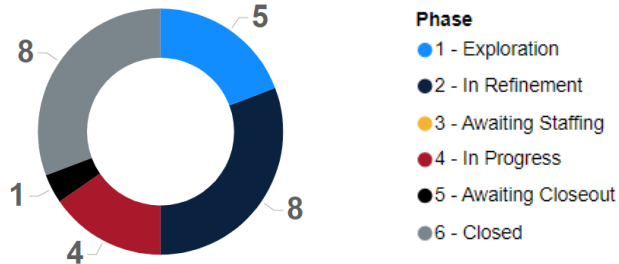
*“We must embrace the relevance of data as a critical element in collaboration, performance enhancement, training, talent management, and shared understanding amongst commanders for decision-making in the 21st century.” - Force Design 2030, June 2023 Annual Update*

## LOO 4: Contested Logistics

Contested Logistics focuses heavily on expeditionary problem sets for the Total Force. Aligned to I&L 2030, the LOO supports enabling the Active Component to achieve I&L 2030 goals that create global logistics awareness, develop logistics professionals for the 21st century, diversify distribution, improve sustainment, and make installations ready for the contested environment.

### Total Engagements

26



In FY23, the LOO organized to maximize stakeholder engagement and effectiveness. The Contested Logistics LOO grew its stakeholder organizations to include:



### Key Engagement: MCICOM Energy & Installation Planning

**Description:** MCICOM lacked solutions to maximize the use of carbon-free energy sources while supporting an installation's capability to operate independent of the commercial electrical grid for up to 14 days. MCICOM leveraged MIU's ability to provide market research in the sector as well as introductions to project managers and research centers that were already exploring this space, such as the Defense Innovation Unit. MIU facilitated discussions between MCICOM and DIU to review Extended Duration Storage for Installations (EDSI) as a solution to the identified problem statement.

**Value Added:** MIU successfully provided market research to MCICOM and introductions to organizations that were more mature in this space, mitigating the limited funding and personnel gaps that MCICOM had to conduct research, development, testing, and/or evaluation on its own. MCICOM is now working towards formal partnerships with DIU to leverage projects and future contracts in the areas of electric vehicle supply equipment, hydrogen, geothermal, and synthetic fuels.

**Key Engagement: MARFORPAC Logistics Tools**

**Description:** MIU supported MARFORPAC and NIWC-LANT in the development of a Transition Support Plan (TSP) to support MARFORPAC in the adoption and enterprise fielding of the Maritime Operational Readiness Tool (MORT). MORT was a model that allowed MARFORPAC the ability to quickly understanding operational reach based on available Class I, III, and V. As a non-traditional acquisition and program management entity, MARFORPAC inherited significant risk when accepting the MORT capability from NIWC-LANT.

**Value Added:** MIU, leveraging its resident experience in software acquisition and lifecycle management, developed a TSP that accompanied the existing prototype of the MORT capability and provided instruction and guidance to MARFORPAC G-4 on how to further enhance and adopt (at scale) the MORT tool.

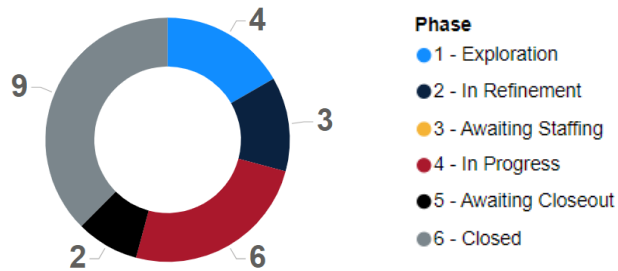
*“Among the seven warfighting functions, logistics most dictates the tempo of operations and the operational reach of a unit. No other warfighting function more profoundly affects our ability to persist in contested spaces.” - Installations and Logistics 2030*

**LOO 5: Capability & Experimentation**

The Capability Experimentation LOO seeks to supercharge key aspects of the capabilities development pipeline, including *transition* of capabilities to the Fleet. Key technology areas include small Unmanned Aircraft Systems (UAS), technical capability assessments, and wargaming support, in direct support of the Marine Corps Warfighting Laboratory.

**Total Engagements**

**24**



**Key Engagement: Advanced Manufacturing at ITX 4-23**

**Description:** Under a strategic partnership with CAMRE/NPS, NAVAIR, and MALS-49, MIU helped develop a digital system to connect latent Advanced Manufacturing capability across the DoD with demand, and demonstrate this capability as part of ITX 4-23.

**Value Added:** The partnership successfully executed a demonstration at ITX 4-23. Leveraging a 3D scan of a Marine’s arm to generate a design for a medical cast, an MV-22 conducted 3D in-flight printing of a cast while the aircraft underwent various ground and flight modes. This was the first successful military test of in-flight additive manufacturing and represents a capability which could prove vital for rapid response during any contested logistic scenario.

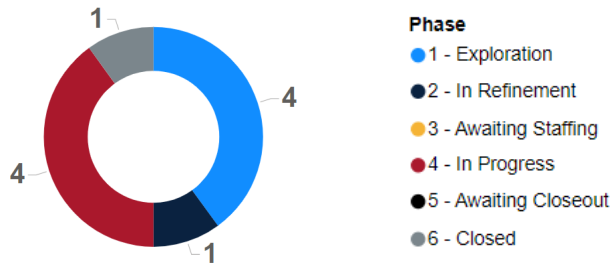
*“In concert with the Marine Corps Warfighting Laboratory (MCWL), Marine Forces Reserve is uniquely postured to exploit emerging concepts and technologies, and to address the need for robust and continuous innovation and experimentation across the major functional areas of the Marine Corps.” - MFR Campaign Plan 2030*

## LOO 6: Withheld Mission

In FY23, this LOO supported 18 different units and several different projects.

### Total Engagements

10



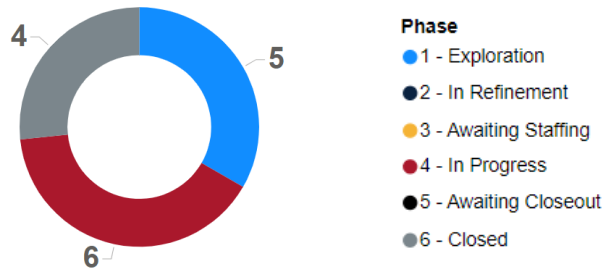
Due to the nature of this LOO, further information can be found at a higher classification. Please contact [MIU\\_Operations@usmc.mil](mailto:MIU_Operations@usmc.mil) for further information.

## LOO 7: Training & Education

The Training and Education LOO provides access to valuable technical, academic, and industry skill sets in support of major initiatives. In FY23 it has identified engagements supporting both T&E 2030 and Service Level Training Exercises.

### Total Engagements

15



In FY23, this LOO focused on:

1. Establishing and developing relationships with key stakeholders at TECOM.
2. Positioning MIU as an organization that has a deep bench/network of talent and skills relevant to innovation within the T&E space.
3. Ensuring LOO is sufficiently staffed, led, and effective in execution.

### Key Engagement: TECOM Unit Readiness Predictive Model MVP

**Description:** Training and Education Command (TECOM) is undertaking the challenge of becoming more analytical and data-driven in hopes of identifying trends and predicting readiness with regard to training requirements and readiness. An Operational Planning Team (OPT) was established as part of TECOM's first exploratory step into using unit training and readiness to predict performance.

**Value Added:** MIU supported MVP development by providing SME feedback throughout the OPT. The MIU team aided MVP development and reviewed several iterations to identify opportunities for further pursuit to achieve efficient and effective data-driven decisions.

*"Develop and implement a plan focused on modernization of all major drivers of training and readiness to better position the force to be more responsive, adaptive, and better prepared to meet the challenges of the future." - MFR Campaign Plan 2030*



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