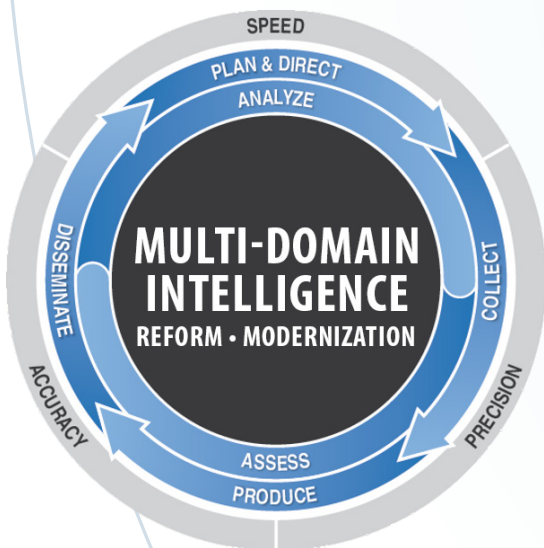


MULTI-DOMAIN INTELLIGENCE

Army G-2 Vision: Deliver a Ready, Total Army Intelligence Team to Enable Multi-Domain Operations by 2028 and Dominate by 2035.

MDI is the Army Intelligence Modernization Framework that increases the *Speed*, *Precision*, and *Accuracy* of the Intelligence Cycle.



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ARMY MULTI-DOMAIN INTELLIGENCE FY21-22 S&T Focus Areas

JOINT SIO FOCUS AREAS

- 1) Counterintelligence and Technology Protection.
- 2) Cross Security and Classification Domain data sharing with Joint and Allied partners.
- 3) Governance and common services such as Application Programming Interfaces (API), common data foundations, and common interfaces.
- 4) Machine Intelligence and enablers such as cloud technologies, development security and operations (DevSecOps), and data labeling.
- 5) Increasing compute efficiency, scaling, and reducing Size, Weight, and Power (SWaP) while increasing resolution of our sensors and communications.
- 6) Modeling and Simulation (M&S) to support AI-enabled wargaming.
- 7) Reducing cognitive burden on Analysts and increasing cognitive dominance.
- 8) Leveraging Publicly Available Information (PAI), Open Source Intelligence (OSINT), and non-traditional information.
- 9) Improving the range and access for capabilities in GEOINT, Electronic Warfare (EW)/Signals Intelligence (SIGINT)/Identity Intelligence systems based on adversary signals of interest (SOI) and activities.
- 10) Countering threats from unmanned systems – space, air, ground, and otherwise.
- 11) Collaborative and distributed: sensing, effects, and mission management..

ON THE HORIZON (3-7 YEARS):

SENSORS

- Quantum Sensing
- Internet of Things
- ‘Unobservable’ Sensing

DATA

- Blockchain and Distributed Ledger
- Distributed Learning and AI Training
- Synthetic Data
- Reinforcement/ AI Agents
- Data Hungry Analytics

ANALYSIS

- Full System on Chip
- Explainable AI
- Fog Computing
- Prescriptive Analytics

ENABLING TECHNOLOGY

- 5G Networks and Chip Fabrication
- Mobile Optical Communications
- Exascale to Edge Computing

ISR TF FY21-22 S&T PRIORITIES

SENSORS

Key Theme: Deep Sensing (DS) to support Targeting

ALL DOMAIN SENSING

- Increased sensor ranges.
- Further focal plane and antenna development.
- Automated target recognition for Long Range Precision Fires and Indirect Fires.
- Automated and dynamic sensing orchestration.
- Emerging technology to leverage traditionally manned aircraft as optionally or remotely piloted platforms.
- Integrated Cyber/SIGINT/EW systems. Novel combinations of sensors and robotic platforms.

COLLABORATIVE SENSING

- Layered sensing to counter an adversary’s layered defense.
- Collaborative and distributed sensing orchestration across intelligence and non intelligence sensors.

AI READY SENSING

- Onboard processing.
- Open Architecture Sensor Integration automated cross cueing and automated tracking.
- Automated exploitation of and Automatic Target Recognition (ATR) Trending towards areas such as quantum and gravimetry.

INSTRUMENTED SENSORS

- Instrumentation necessary to leverage Internet of Things technologies.
- Constant feedback to tele operations and local, edge, robotics processing.

DATA

Key Theme: Data and Signature Management

GOVERNED DATA FOR SECURITY AND MANAGEMENT

- Data governance tools.
- Distributed Ledgers and execution.
- Digital smart contracts.

DISCOVERABLE DATA ACROSS SYSTEMS

- Automatic data extraction from non traditional sources.
- OSINT and PAI Management and assessment.

ACCESSIBLE DATA USABLE BY ALL

- Modular data transformation.
- Automated ingestion tools.
- Capabilities that can fuse or stitch ontologies.

SHARABLE DATA PRODUCED ACROSS SYSTEMS

- Libraries of annotated multi int training data from multiple view angles.
- Fusion of data about a specific object collocated in time and space.

ANALYSIS

Key Theme: Tech Augmented Decision Support

SHARABLE ANALYTICS AND SERVICES

- Micro service based Machine Learning Operations.
- Compliant tools and models for transfer learning.
- Automated support the Intelligence Preparation of the Battlefield (IPB) process as part of the Military Decision Making Process.

TECHNOLOGY AUGMENTED TO REDUCE COGNITIVE BURDEN

- Automated workflows to Conduct Intelligence Processing, Exploitation and Dissemination (PED)
- Expeditionary PED operations, Cloud enabled Reach PED operations, and PED Readiness Training.
- Identifying friendly and adversarial Information Maneuver operations.

MISSION TAILORABLE SUPPORT TO IPB

- Automated Course of Action analysis.
- Dynamic collection orchestration.
- Activity and knowledge modeling.
- Automated effects recommendations
- Automated physical and functional combat assessment.
- Reduction of cognitive burden through technology augmented analysis.
- Robotic Process Automation (RPA).
- Automated semantic extraction.
- Automated Order of Battle Analysis.

EDGE READY INTEL SUPPORT TO OPS

- Able to maintain coherence and prevent data drift.
- Able to expedite the passing of target data to Army and Joint firing systems.

FUTURE OF THE ENTERPRISE AND ENABLERS

Key Theme: Security, Foundations, and Training

SECURITY TO PROTECT INTEL MODERNIZATION

- Counterintelligence and protection of intellectual property protection.
- Capabilities to support software and hardware supply chain transparency.

FOUNDATIONS TO BUILD ON

- Enabling technologies for ML, AI, Robotic Process Automation (RPA), and Data Science.
- System on a chip to provide edge processing and host analytics on the move.

TRAINING THE FUTURE MI FORCE

- Technologies also include capabilities to train and upskill our force in the development, deployment, and trust of AI and robotic systems.
- The ability to conduct realistic training, and training that adapts based on the skills of the user.

- Tech Protect
- Security
- Automation
- Machine Intelligence

- Joint, Coalition
- Collaborative
- All Domain
- Counter Intel