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# PEO IEW&S
# Strategic Outlook Session

**PEO IEW&S**
Program Executive Office
Intelligence, Electronic Warfare & Sensors

**U.S. ARMY**

# PM Cyber and Space
# Long-Term Technology Needs

MR. STEVEN RACZKOWSKI

**PEO IEW&S**

Program Executive Office
Intelligence, Electronic Warfare & Sensors

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# (U) Mission:
Acquire and field offensive cyber and tactical space capabilities that protect the Soldier, the Nation and enable cyberspace superiority.

# (U) Vision:
An Army equipped with upgradable, integrated and networked information warfare, cyber and space capabilities to overmatch the threat in multi and joint domain operations.

# (U) POC:
Mr. Steven Raczkowski
IWCD Chief Engineer
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## INFORMATION WARFARE CYBER DEVELOPMENT

**Rapid Cyber Development Network (RCDN)**
(U) Remote accessible closed network supported by Commercial Off the Shelf (COTS) hardware and COTS/ open-source software to drive cyber capabilities development and testing for DoD equities.

**Foundational Toolkit (FTK)**
(U) Bespoke collection of modular software components that can be combined to pace the dynamic cyber landscape.

**Tactical Cyber Equipment (TCE) RDEP**
(U) Tactically deployable, RF-enabled hardware and software systems for use by Army Cyber forces supporting both dismounted/wearable and mounted/fixed-site configurations via C5ISR/EW Modular Open Suite of Standards (CMOSS).

**Savant Catalyst (SC)**
(U) Selectively deployed commercial hardware and commercial/custom software to enable passive (SC & DB) network mapping of desired objectives and actively (DB) impact data flows.  SC interprets network data to inform targeting process and DB captures and delivers network data for follow-on impacts.

## INFORMATION WARFARE CYBER INFRASTRUCTURE

**Joint Common Access Platform (JCAP)**
(U) The Joint Common Access Platform (JCAP) supports USCYBERCOM by providing a protected, managed, orchestrated environment and common firing platform to coordinate and execute the delivery of cyber effects against approved targets.  This capability enables Cyber Mission Forces' (CMF) ability to execute operations while managing detection and attribution..

**Fierce Penguin (FP)**
(U) Software Firing Platform System that enables a cyber operator to manage, orchestrate, or interactively execute Offensive Cyber Operations. This capability provides cyber operators with (1) ability to iteratively automate and scale operations, (2) a common interface and visualization environment, and (3) a mechanism for cyber tool and operator metric collection..

**PROGRAMS OF RECORD**

# (U) PM C&S Technology Gaps

| (U) Priority | (U) Description of Gap/Challenge | (U) Timeline (#QFYY) | (U) POC (name, email) |
|---|---|---|---|
| 1 | (U) Low-SWAPC AI processing architectures hosted on (no more than) 1/4 of a standard 3U VPX CMOSS card, to provide on-board/tactical employment of commercial-grade generative AI and General AI algorithms for signal recognition/ characterization and dynamic/real-time response | Q4FY27 | Steven Raczkowski Steven.e.raczkowski.civ@army.mil |
| 2 | (U) On-premises/disconnected generative AI/LLM solutions for code generation and completion with acceptable performance/responsiveness. Continuous and rapid model updates and customization based on specific project needs and evolving coding practices, without relying on connectivity to external resources or navigating complex update procedures to ensure the model remains relevant and effective in dynamic development environments. | Q1FY26 (Initial) Q4FY26 (Robust) | Steven Raczkowski Steven.e.raczkowski.civ@army.mil |

TABLE IS UNCLASSIFIED

**PM Defensive Cyber Operations Long-Term Technology Needs**

MR. ROBERT NASH

# Gaps/Challenges

| Priority | Gap/Challenge | Description of Gap/Challenge | Timeline (#QFYY) | POC (name, email) |
|---|---|---|---|---|
| 1 | Information Dimension | The Army requires industry solutions to enable converged Information Advantage (IA) activities, providing overmatch across the physical, human, and information dimensions of the operational environment (OE). This currently represents a focus area in the Army. | FY27 | LTC Brandon Pye brandon.a.pye.mil@army.mil |
| 2 | Specialized Sensors | The Army is required to defend all critical cyber terrain, including harsh physical environments. DDS-M requires industry solutions for a compact, ruggedized, and modern network sensor that functions reliably despite extreme temperatures. A next-generation sensor that prevents dust ingress and other environmental factors represents a focus area in the Army. | FY28 - 30 | MAJ Christopher White christopher.p.white1.mil@army.mil |
| 3 | Limited Anomaly Detection Accuracy | Developing innovative anomaly detection solutions for behavior analysis that minimize both false positives and false negatives are needed. These solutions should demonstrate significantly improved accuracy compared to current models. | FY27-28 | Joel David joel.david2.civ@army.mil |
| 4 | Automation and Integration Framework | The Forensics & Malware Analysis team requires an automated workflow system for parallel evidence processing, customizable workflows, and real-time monitoring. This framework needs to allow seamless integration of forensic tool interaction leveraging API and unified management. | FY26-27 | Monestine, Didier (DJ) didier.monestine.civ@army.mil |
| 5 | Assistance of AI to execute Cyber Protection Brigade (CPB) playbooks and run books | CPB can benefit from Retrieval Augmented Generation (RAG) which enhances large language models (LLM) by incorporating retrieval of curated documents before generating responses. A RAG capability will provide cyber warfighters with a semantic search on data, flatten the learning curve, reduce onboarding timeline of new soldiers, and establish an AI enhanced repository of techniques, tactics, and procedures. | FY26-FY27 | Jon Smith jon.e.smith8.civ@army.mil |

POC: Mr. Robert Zoppa, robert.j.zoppa.civ@army.mil

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# PM Electronic Warfare & Cyber Long-Term Technology Needs

MR. FRAN ORZECH

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| Priority | Description of Gap/Challenge | Timeline (#QFYY) | POC (name, email) |
|---|---|---|---|
| 1 | **Advancing EW and SIGINT Capabilities to Operate in Complex Environments:**<br>• AI/ML for EW and SIGINT to Enhance Situational Awareness<br>• Interoperable SIGINT and EW Systems<br>• Counter-SOI Capabilities<br>• Expanding EMSO Techniques Portfolio to Support MDO<br>• Improved RF Modeling and Simulation<br>    • SIGINT/EW Modeling, Simulation, and Visualization<br>• Deep Sensing (Aerial, Terrestrial, Unmanned, Stay away from LE)<br>• Obfuscation & Counter Obfuscation<br>• Tethered System Payloads<br>• Blue Force Emissions Awareness | Recurring LOE | Mr. Fran Orzech<br>Francis.t.Orzech.civ@army.mil |
| 2 | **Enhanced Data Management and Integration for EW and SIGINT:**<br>• Integrated Information and Data Analytics<br>• Interoperable Data Standards<br>• Secure and Scalable Data Sharing<br>• Resource Management and Optimization<br>• Advances in User Interfaces/Experience | Recurring LOE | Mr. Fran Orzech<br>Francis.t.Orzech.civ@army.mil |

POC: Mr. Fran Orzech, Francis.t.orzech.civ@army.mil

# PM Intel Systems & Analytics Long-Term Technology Needs

MR. DAVID SZCZESNY

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| Description | Timeline (#QFYY) | POC (name, email) |
|---|---|---|
| **Services Enabled Architecture (Micro-Services)** <br> • Modular and Managed Normalization (Inbound, Outbound, Display) Services <br> • Improved/Automated Imagery Exploitation and Target Naming Service <br> • Improved and/or AI Assisted Geospatial Analytics (Terrain Analysis, Concealment, Route Analysis) | 1QFY26 | |
| • **Scalable Ontologies and Workflow Management in Support of Battle Damager Assessment (BDA)** <br> • Reporting and Persisting BDA <br> • Workflow Management of BDA, Integrating/De-Duplicating multiple Systems Reporting <br> • BDA Support to Targeting | 2QFY26 | David Szczesny; david.l.szczesny.civ@army.mil |
| **Artificial Intelligence (AI) Enabled Capabilities** <br> • Data Collection and Data Tagging for AI (Intel Specific) <br> • System Test and Evaluation of AI <br> • Pattern Analytic – Discovery of Threat Patterns within Army Intelligence | 4QFY26 | |

# PM Position Navigation and Timing Long-Term Technology Needs

MR. JOE STEVANAK

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## Assured PNT Technology Gaps

| Priority | Description of Gap/Challenge | Timeline | POC |
|---|---|---|---|
| 1 | Cost-effective, Non-RF, Full APNT System Solutions | FY28 | Joe Stevanak, Director, Systems Engineering, Test and Cyber joseph.t.stevanak.civ@army.mil |
| 2 | Advanced sensor fusion engine algorithms (AI) | FY28 | |

## NAVWAR Technology Gaps

| Priority | Description of Gap/Challenge | Timeline | POC |
|---|---|---|---|
| 1 | NAVWAR Attack Techniques: pending program initiation | TBD | Joe Stevanak, Director, Systems Engineering, Test and Cyber joseph.t.stevanak.civ@army.mil |
| 2 | NAVWAR SA: pending program initiation | TBD | |

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# PD Sensors-Aerial Intelligence Long-Term Technology Needs

MR. MARC BUSALA

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Crawl → Walk → Run → Marathon

## Generic Gaps (Derived Requirements)

- Data Overload - Capability of Sensors Exponentially Improving
  - Data Mining/Correlation - Lessen Operator Workload
  - Resource Utilization - Data on the Floor
  - Link Limits – How to Get Data Off the Platform
- Move from Phenomenology/Platform Centric Operation to System Centric
  - Swarm Concept (SoS)
    - Orchestration/Coordination
    - Multifunction Payloads
  - Better/Faster ID
  - Geolocation to Support Precision Fires
- Get to Intent (Tactical & Strategic)
  - Analysis of Data
  - Analysis of What Data is Needed

## Organization: PD SAI

| Priority | Gap/Challenge | Description of Gap/Challenge | Timeline (#QFYY) | POC (name, email) |
|---|---|---|---|---|
| 1 | Multi-function Radio Frequency (RF) apertures | Single wideband RF system to operate at the intersection of cyberspace, electronic warfare, radar, and communications. | FY30 | Marc Busala marc.busala.civ@army.mil |
| 3 | Small Size, Weight, and Power (SWaP) Payloads | Maturing Detect, Identification, Locate, and Report (DILR) technologies that can be tailored to Launched Effects/High Altitude Platform (HAP) SWaP requirements based on platform | FY27 | Marc Busala marc.busala.civ@army.mil |
| 2 | Multi-enclave data solutions | Method of sharing data across security enclaves is required to support sensor to shooter capabilities. | FY28 | Marc Busala marc.busala.civ@army.mil |

POC: Marc Busala, marc.busala.civ@army.mil

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# PM Terrestrial Sensors
# Long-Term Technology Needs

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# PM TS Technology Gaps

## PD Combat Terrain Information Systems

| Priority | Description of Gap/Challenge | Timeline (#QFYY) | POC (name, email) |
|---|---|---|---|
| 1 | Passive, persistent geophysical sensing for situational awareness to include infrastructure | Q4FY25 | Cory Baron, cory.j.baron@usace.army.mil |
| 2 | All weather autonomous subterranean detection and mapping systems suitable for variable terrain and complex geologic environments, such as mountains, and hard rock geology. | Q4FY27 | Cory Baron, cory.j.baron@usace.army.mil |
| 3 | Autonomous geolocation of toxic chemicals and materials (surface and subterranean. Prediction of potential effects of same on air, water and ground. and routing based on weighted-risks. | Q4FY25 | Cory Baron, cory.j.baron@usace.army.mil |
| 4 | Predictive (military vehicle) off-road mobility analysis tools for variable terrain, complex geologic and atmospheric (weather) environments. | Q4FY25 | Cory Baron, cory.j.baron@usace.army.mil |
| 5 | Micro and macro-biological sensor technologies that characterize and report threats posed to Warfighters by naturally occurring threats in subterranean and surface | Q4FY26 | Cory Baron, cory.j.baron@usace.army.mil |

## PM Biometrics

| Priority | Description of Gap/Challenge | Timeline (#QFYY) | POC (name, email) |
|---|---|---|---|
| 1 | Most electronics are not able to meet 72 hours of continuous field use. This requires the device to be put in standby or charged to support operationally relevant timelines. | 1QFY26 | Patrick Cantwell, patrick.r.cantwell.civ@army.mil |

## PD Aerostats

| Priority | Description of Gap/Challenge | Timeline (#QFYY) | POC (name, email, phone) |
|---|---|---|---|
| 1 | Modernization effort to enable lighter weight payload sensors to be integrated into architecture that is readily compliant with information assurance policies | NA | Jesenia C. Velez Jesenia.c.velez.civ@army.mil |
| 2 | Transportable, lightweight, low manpower autonomous aerostat systems. | NA | Jesenia C. Velez Jesenia.c.velez.civ@army.mil |
| 3 | Data fusion Artificial Intelligence for sensor fusion and aerostat flight dynamics. | NA | Jesenia C. Velez Jesenia.c.velez.civ@army.mil |

## PM Force Protection Systems

| Priority | Description of Gap/Challenge | Timeline (#QFYY) | POC (name, email, phone) |
|---|---|---|---|
| 1 | Centralized Intrusion Detection Monitoring of multiple geographically adjacent Army Installations from a regional hub. Attribute: 1. Reliable communication connections between multiple Installations and the regional hub within a logical Close Restrictive Network environment. 2. Overarching central monitoring C2 that can integrate disparate Intrusion Detection applications not ICIDS into a common GUI | 1QFY26 | Maranatha Brackett, maranatha.brackett.civ@army.mil |
| 2 | Augmentation of the system with an AI/ML enabled capability to increase and improve probability of the system to detect, identify, and track anomalous activity. | 1QFY26 | Dan Kuehl, daniel.d.kuehl.civ@army.mil |
| 3 | A Pre-Shot System to provide a 360-degree surveillance capability and be capable of detecting a sniper or gunman with a probability of detection (Pd) ≥ 0.90 at undetermined distances from the system and provide a target localization error in elevation and azimuth, and in range. | 1QFY26 | Dan Kuehl, daniel.d.kuehl.civ@army.mil |
| 4 | Support Foreign National identification and vetting through external systems for access decision | 4QFY25 | MAJ Caleb Black, caleb.t.black2.mil@army.mil |
| 5 | Share consistent Installation Access Control (IAC) data and system operation information with external organizations (CI, Law Enforcement). | 1QFY26 | MAJ Caleb Black, caleb.t.black2.mil@army.mil |
| 6 | Capture, track, and report personnel information of unauthorized access attempts at Access Control Points. | 1QFY26 | MAJ Caleb Black, caleb.t.black2.mil@army.mil |
| 7 | Automated vehicle lanes operations at Access Control Points | 3QFY26 | MAJ Caleb Black, caleb.t.black2.mil@army.mil |

## PM Ground Sensors

| Priority | Description of Gap/Challenge | Timeline (#QFYY) | POC (name, email, phone) |
|---|---|---|---|
| 1 | Need modular, scalable, lightweight sensors that provide situational updates such as assembly areas, landing and drop zones, flank protection, perimeter breach surveillance, and key enemy avenues of enemy approach or withdrawal. | 2QFY28 (AROC Approval) | Eric Matteson, eric.j.matteson.ctr@army.mil |
| 2 | Need scalable, modular threat detection capability that detects multiple threats, and/or other weapon system emissions, minimizing false alarm rates, and while ignoring outward bound countermeasures from the host platform weapon systems. | 1QFY30 (Outcome Decision) | Seth Middleton, seth.t.middleton.civ@army.mil |