

## **USSOCOM FY22-27 Science and Technology Integrated Priority List (STIPL)**

**NOT in priority order**

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### **(U) Special Communications**

#### **Synopsis:**

Resilient, survivable, federated networks and information ecosystems are critical for the successful execution of SOF missions. In order for SOF to conduct operations in hostile, denied, or politically sensitive environments, SOF will require Special Communications technical solutions that do not currently exist.

#### **Recommended Actions:**

USSOCOM needs external government, industry, academia, and other non-traditional partners that can provide next generation technical solutions that enable

- Timely, actionable, mission assured dissemination of data
- Use of indigenous communications
- Robust encryption methodologies/devices
- Low Probability of Intercept/Detection (LPI/LPD line of sight/Beyond Line of Sight (LOS/BLOS) with specific emphasis on contested area data management
- Multipurpose wireless devices

### **(U) Tailorable Lethality**

#### **Synopsis:**

National policy and Commander, USSOCOM supports a strategy that pursues a competitive advantage through building a more lethal force. SOF requires capabilities that provide significant increases in precision effects and combat lethality to deliver small unit dominance.

#### **Recommended Actions:**

USSOCOM needs external government, industry, academia, and other non-traditional partners that can provide next generation technical solutions that enable

- Data networking enhancements that improve the transport of targeting data
- Precision guided munitions
- Novel technologies to support/enable next generation ISR, particularly in contested and/or non-permissive environments
- Methods to enable SOF to secure access to buildings, facilities, and structures remotely or with lower risk to personnel

**(U) Electronic Warfare (EW)****Synopsis:**

SOF EW systems need to encompass an approach to collect/identify threat Signals of Interest. EW development is needed in the areas of EW and Cyber effects that can enable or execute collaborative non-kinetic/kinetic effects in a multi-domain environment.

**Recommended Actions:**

USSOCOM needs external government, industry, academia, and other non-traditional partners that can provide next generation technical solutions that enable

- EW and other non-kinetic methods of attack to create effects in a contested and denied environment to destroy/ disable Anti-Access/Area Denial targets to enable freedom of maneuver. Maritime/ Littoral are high priority domains for this capability.
- Novel power sources with greater power densities in smaller envelopes
- Flexible, resilient solutions that can be rapidly tailored to the dynamic operating environment

**(U) Human Performance Optimization (HPO)****Synopsis:**

Novel means to enhance situational awareness in real time, while safely improving/increasing the SOF operator's physical and cognitive abilities, will be required in order to effectively conduct SOF missions in the future operating environment.

**Recommended Actions:**

USSOCOM needs external government, industry, academia, and other non-traditional partners that can provide next generation technical solutions that enable

- Novel approaches to achieve the restorative effects of sleep
- Novel approaches that provide greater mental acuity
- Minimally invasive diagnostic devices to provide actionable information on predictors of potential injury
- Technologies to maximize physical performance (e.g. increased endurance, greater tolerance of heat/cold/altitude, etc.)

**(U) Data Enabled SOF****Synopsis:**

SOF requires advances in artificial intelligence/machine learning (AI/ML) and edge computing techniques to enable data accessibility, advanced processing and analysis, and dissemination in contested/disconnected operating environments. The ability to access and quickly process critical data will advance SOF's effectiveness through flexible autonomy, reduced operator cognitive loading, and timely actionable insight to tactical decision making.

**Recommended Actions:**

USSOCOM needs external government, industry, academia, and other non-traditional partners that can provide next generation technical solutions that enable

- Edge computing solutions to process data from multiple sources and sensors with minimal hardware footprint and power consumption levels (objective – man portable).
- Adaptive AI/ML models that provide a level of autonomy across SOF mission sets to decrease cognitive loading, further enabling SOF to focus on the task at hand.
- Advanced techniques to exponentially accelerate the employment of AI/ML models at the tactical edge.
- Data fusion techniques to interconnect and enrich disparate data streams from newly developed AI/ML-based and non-AI/ML legacy capabilities.
- Dynamic data management techniques to minimize/prioritize movement of data within hybrid cloud, network connected/disconnected scenarios.