

TECHNOLOGIES FOR THE GLOBAL WAR ON TERRORISM



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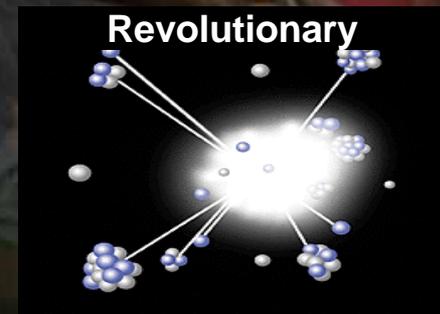
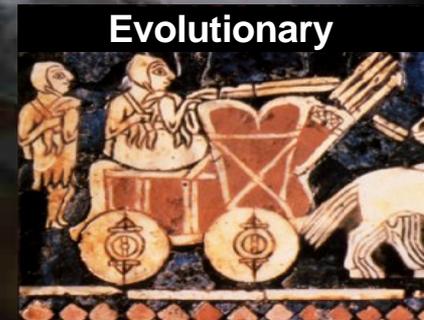
TECHNOLOGY MISSION

- **Monitoring/managing and executing program baseline for SO-peculiar advanced technology.**
- **Provide quick-reaction development and interface with other Services, Government agencies, and industry.**
- **Transition technology projects and new initiatives into formal acquisition programs.**



USSOCOM PERSPECTIVE ON TECHNOLOGY

- Leverage those critical technologies that give us a decided advantage.
- Look for leap-ahead technologies that will result in revolutionary systems.
- Capitalize on leading-edge technologies.
- Significantly enhance the human dimension.
- Leverage relevant technology projects.
- Seek to infuse technology into concepts.





USSOCOM TECHNOLOGY PROGRAMS



- **SPECIAL OPERATIONS TECHNOLOGY DEVELOPMENT**



- **SOF MEDICAL TECHNOLOGY DEVELOPMENT**



- **SPECIAL OPERATIONS SPECIAL TECHNOLOGY**



- **SMALL BUSINESS INNOVATION RESEARCH**





TECHNOLOGY THRUST AREA

Thrust areas offer USSOCOM the greatest opportunity for technological payoff. Thrust areas address significant technological gaps within the SOF arena and offer it the greatest payoff for the future.



CHARACTERISTICS

- **Solutions to compelling operational shortfalls.**
- **Represent substantial technological opportunities.**
- **Leap-ahead, non-linear advances in unconventional operations.**
- **High payoff/accommodate high risk.**
- **Difficult but achievable.**
- **Responsive to component requirements.**
- **SOF-peculiar.**
- **USSOCOM is a willing financial partner with industry, labs, and academia.**



LEVERAGING TECHNOLOGY THRUST AREAS

SIGNATURE REDUCTION

BATTERIES/FUEL CELLS

Partnering

UNMANNED SYSTEMS

ADVANCED TRAINING SYSTEMS

Participation

REMOTE SENSING

BIOENGINEERING

Influencing

UNDERWATER COMMUNICATIONS

DIRECTED ENERGY WEAPONS

Endorsement

**HIGH BANDWIDTH/
REACHBACK
COMMUNICATIONS**

**GREATEST OPPORTUNITY FOR
OPERATIONAL PAYOFF**

**PSYCHOLOGICAL
OPERATIONS**



TECHNOLOGY THRUST AREA

Signature Reduction



Capabilities/Areas of Concern:

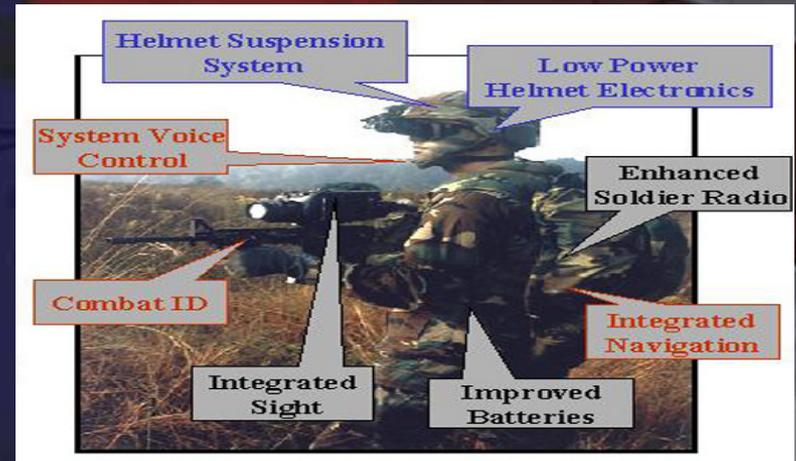
- Signature reduction technologies must eliminate or significantly reduce electromagnetic, visual, laser, IR, RF, seismic, aural and olfactory signature of the SOF operator and his equipment to include air, land, and sea mobility platforms.

Projects:

- Vehicle Camouflage System
- Small Versatile Maritime Mobility Craft
- Active Noise Cancellation

TECHNOLOGY THRUST AREA

High Bandwidth/Reachback Communications



Capabilities/Areas of Concern:

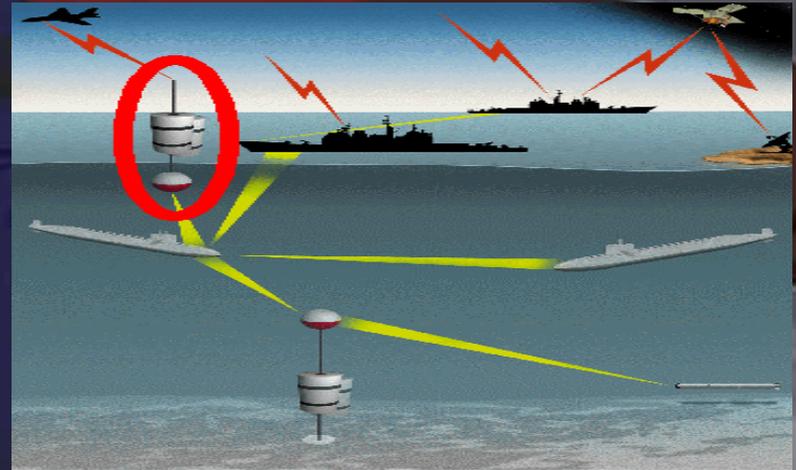
- Seamless information enterprise across full spectrum of operations.
- Premium on high bandwidth, relay, LPI/LPD, long-range reachback to access worldwide databases.
- Transmit large volumes of voice, data, full motion video in near real-time/real-time.

Projects:

- Antenna Enhancements
- Tactical Personal Computer
- LPI/LPD Imagery Link/Forwarding
- Conformal Antenna Systems

TECHNOLOGY THRUST AREA

Underwater Communications



Capabilities/Areas of Concern:

- System must be small, waterproof to 66 feet, and have integrated LPI/LPD.
- Must communicate with support platforms (ASDS, SDV, UAV, Aircraft) at extended ranges in multimode transmission modes.
- Must seamlessly integrate with future naval surface/subsurface communications architecture.

Projects:

- Undersea Master Communications Node
- Burst Communications & LPD Antenna (SDV)

TECHNOLOGY THRUST AREA

Unmanned Systems



Capabilities/Areas of Concern:

- Unmanned, semiautonomous, autonomous robotic systems (air, land, sea, and future space) from tactical to nano size for missions requiring R&S, target designation, destruction and assessment, NBC activities, and CP in deeply buried complexes.

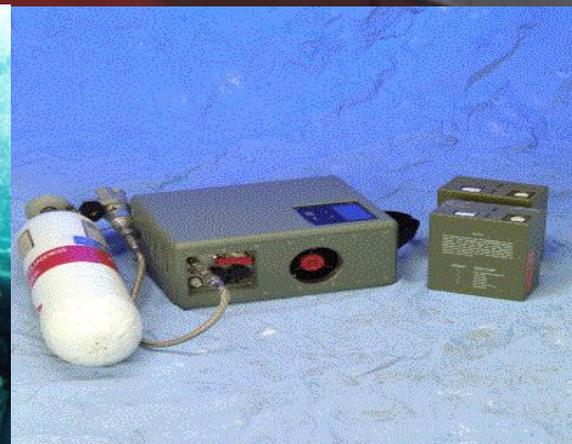
Projects:

- Miniaturized Robotics
- Micro Unmanned Vehicles
- Pointer UAV
- Unmanned Recon & Observation Craft-Riverine



TECHNOLOGY THRUST AREA

Batteries/Fuel Cells



Capabilities/Areas of Concern:

- Power sources must be capable of continuous operation with minimal thermal, electromagnetic, acoustic, or visual signature, and operate effectively underwater and underground.
- Lightweight, small, maintenance free, versatile, and inexpensive.

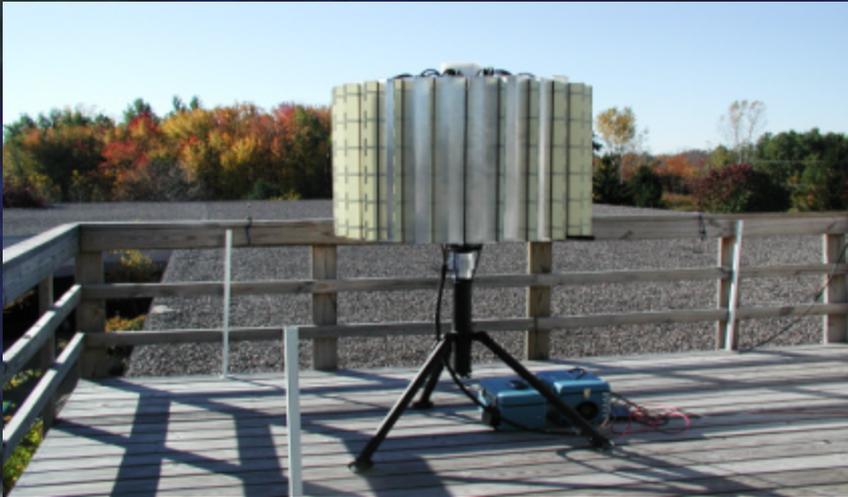
Projects:

- Energy Scavenging Technology
- Battery Recharging System
- Power Source for ASDS/SDV



TECHNOLOGY THRUST AREA

Remote Sensing



Capabilities/Areas of Concern:

- Full spectrum of remote sensors with ability to fuse all info into usable intel.
- Identifying real-time/near-real-time movement of targets.
- Target acquisition reliability.
- Increased standoff from targets.

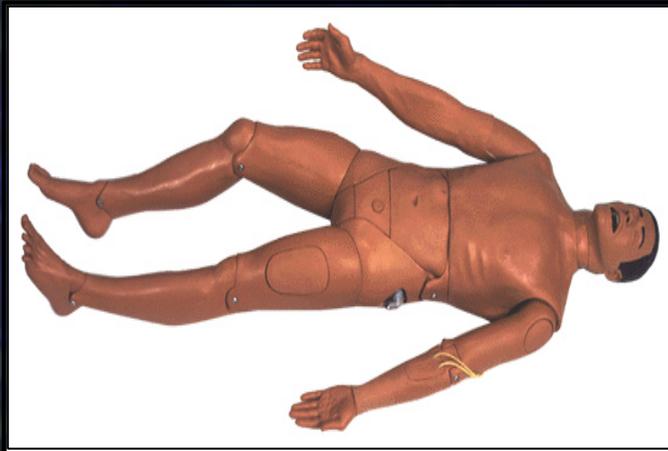
Projects:

- Intrusion Sensor System
- Remote Runway Survey System
- Remotely Monitored Battlefield Sensor Technology
- Pathfinder ACTD



TECHNOLOGY THRUST AREA

Advanced Training Systems



Capabilities/Areas of Concern:

- Systems must cover the entire spectrum of mission preparation from planning to training to rehearsal to execution.
- Systems must be tailorable and on-demand through use of databases and data fusion tools to replicate the full range of situations and conditions.

Projects:

- SOF Vis
- Tactical Simulator for Naval SOF
- Advanced SO Planning & Rehearsal Parachute Simulation
- Cognitive Learning Strategies for SOF



TECHNOLOGY THRUST AREA

Bioengineering



Capabilities/Areas of Concern:

- Disease diagnostics, miniaturized medical monitoring, field analgesia, hand-held laser instruments, devices for coagulation and closure.
- Protection from infection, pests, and chem/bio agents.
- Prophylactic interventions, ergogenics, pharmaceuticals, tissue regeneration, hemostatic agents.

Projects:

- Combat Casualty Care
- Diving Medicine
- Performance Enhancements
- Medical Informatics



TECHNOLOGY THRUST AREA

Directed Energy Weapons



Capabilities/Areas of Concern:

- Tunable lethal/non-lethal weapon to neutralize, kill, or suppress enemy or civilian personnel as well as incapacitate vehicles, ships, or aircraft.
- Ability to force personnel to vacate an area or temporarily incapacitate personnel within a bunker, building, ship, or plane.



Projects:

- Non-lethal Program
- Advanced Tactical Laser



TECHNOLOGY THRUST AREA

Psychological Operations



Capabilities/Areas of Concern:

- Robust, secure, and interoperable C2 system that requires access to advances in analytical/planning tools.
- Effects modeling and assessment.
- Long-range multidimensional broadcast system.
- Long-range 3-D holograph imaging & laser light text messaging projection.

Projects:

- PSYOP Extended Range Broadcast System
- Language Translation Technologies
- Wind Supported Aerial Delivery System



SUMMARY

- Equip SOF with leading-edge technology to provide them the winning edge.
- We must infil/exfil undetected into denied areas, and provide survivability enhancements for SOF and their platforms.
- We want your ideas and participation in the global war on terrorism.





SIGNATURE REDUCTION

The goal of the SOF technology community is to make SOF weapon systems/operators nearly undetectable. Reduction of personnel and equipment signature requires minimizing/eliminating visible, electronic, RF, IR, seismic, aural and olfactory signs to achieve the highest degree of signature management.



HIGH BANDWIDTH/ REACHBACK COMMUNICATIONS

The uniqueness of SOF and its mission requirements place a premium on high bandwidth, LPI/LPD, reachback capability. These assets must be able to transmit voice, data, and full motion video images in near real-time/real-time. Reachback capabilities will allow the SOF operator to selectively access all worldwide databases.



UNDERWATER COMMUNICATIONS

Such an underwater system must be small, waterproof, have LPI/LPD, and be able to link into another node in any future underwater system. It must allow the operator to communicate with other support platforms. Furthermore, it must be able to seamlessly integrate into the entire future naval surface/subsurface communications architecture.



UNMANNED SYSTEMS

A family of unmanned, semiautonomous or autonomous robotic systems (air, sea, land, and future space) range from tactical to micro and nano categories to form the keystone technology for the near-term and far-term operating requirements for SOF. These systems must possess a reduced logistical footprint and withstand the rigors of various climates and operating environments.



BATTERIES/FUEL CELLS

SOF will require batteries/fuel cells that are small, lightweight, and inexpensive while being long-lasting, high power, interchangeable, and capable of multiple recharging. These batteries/fuel cells must give off little or no signature and provide SOF operators extended operating capabilities (months) without suffering degradation or requiring resupply.



REMOTE SENSING

These sensors must be capable of detecting electronic emission/transmission, seismic, acoustic, IR, electro-optic, electro-magnetic, RF, CBR, and physical presence of the target individuals and groups. They must be capable of operating in all climates and environments. Additionally, they must possess reliable, long-lasting power sources and secure data transmission capability.



ADVANCED TRAINING SYSTEMS

SOF forces require the highest level of realistic training using advanced rehearsal systems that are not routinely part of the mainstream DoD forces. These training systems must provide the latest high fidelity, virtual reality mission rehearsal systems for air and boat crews as well as HAHO/HALO parachuting. These systems must have the capability to download map data and imagery and merge real-time information. Additionally, training systems must encompass language translation enhancements.



BIOENGINEERING

Bioengineering can assist SOF by providing advanced medical techniques, procedures, improved drugs, whole blood substitute, biocompatible material for implants and nanoscale sensors for detection of disease, as well as biological agents and chemicals.



DIRECTED ENERGY WEAPONS

Directed Energy (DE) applications will allow SOF to deliver a tuneable (lethal to non-lethal) force for varying degrees of effects. This weapon can be employed against hard targets such as C2 infrastructure or soft targets like personnel. This capability offers a flexible response in the urban environment. We must also provide for force protection for SOF as well as protection and hardening against DE weapons and effects.



PSYCHOLOGICAL OPERATIONS

PSYOP requires a robust, secure, and interoperable C2 system to achieve synchronous planning and operations among the Services, Interagency, and allies. This C2 capability requires access to advances in analytical/planning tools that support social science analysis, marketing analysis tools, resident community of interest data mining and collaboration systems, and resident simultaneous access to multiple security system environments. PSYOP also requires effects modeling and assessment, long-range multidimensional broadcast system, long-range 3-D holograph imaging system, and long-range laser light text messaging projection.