TECHNOLOGICAL CAPABILITIES FOR THE GLOBAL WAR ON TERRORISM

5 February 2004

Mr. J. Frank Wattenbarger

Director, Advanced Technology Directorate

AGENDA

- **Transformation at USSOCOM**

- **Technology Programs**

- **Transition to Acquisition**

- **Where We're Going**

TRANSFORMATION PILLARS

- **Strengthening Joint Operations**

- **Exploiting U.S. Intelligence Advantages Through Multiple Intelligence Collection Assets**

- **Experimenting in Support of New Warfighting Concepts and Capabilities Through Wargaming and Exercises**

- **Developing Transformational Capabilities Through Increased and Wide-ranging Science and Technology**

3

SIX OPERATIONAL GOALS

- **Protecting Critical Bases of Operations and Defeating CBRNE**
- **Assure Information Systems and Conduct Effective IO**
- **Project and Sustain U.S. Forces in Distant Environments**
- **Deny Enemies Sanctuary Through Persistent Surveillance, Tracking, and Rapid Engagement**
- **Enhance the Capability and Survivability of Space Systems**
- **Leverage Information Technology and Innovative Concepts**

SOAL-T TECHNOLOGY PROGRAM MISSION

To Provide the Technological Means That Enable Special Operations Forces to Achieve and Maintain the Operational Advantage Over All Adversaries Regardless of Theater of Employment or Conditions
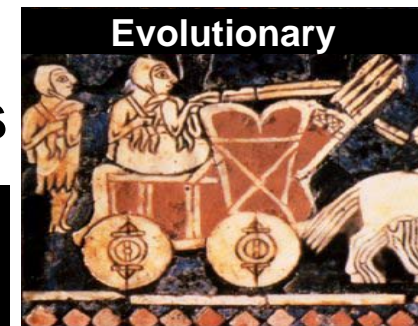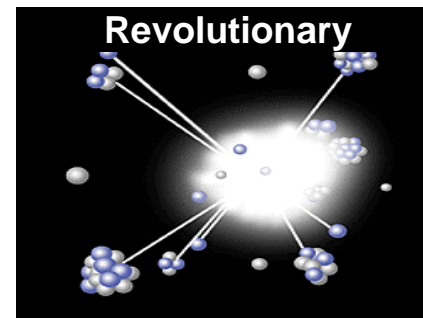
FULL SPECTRUM FORCE:
From Masters of No Tech/Low Tech Solutions to Leading Edge Technologists
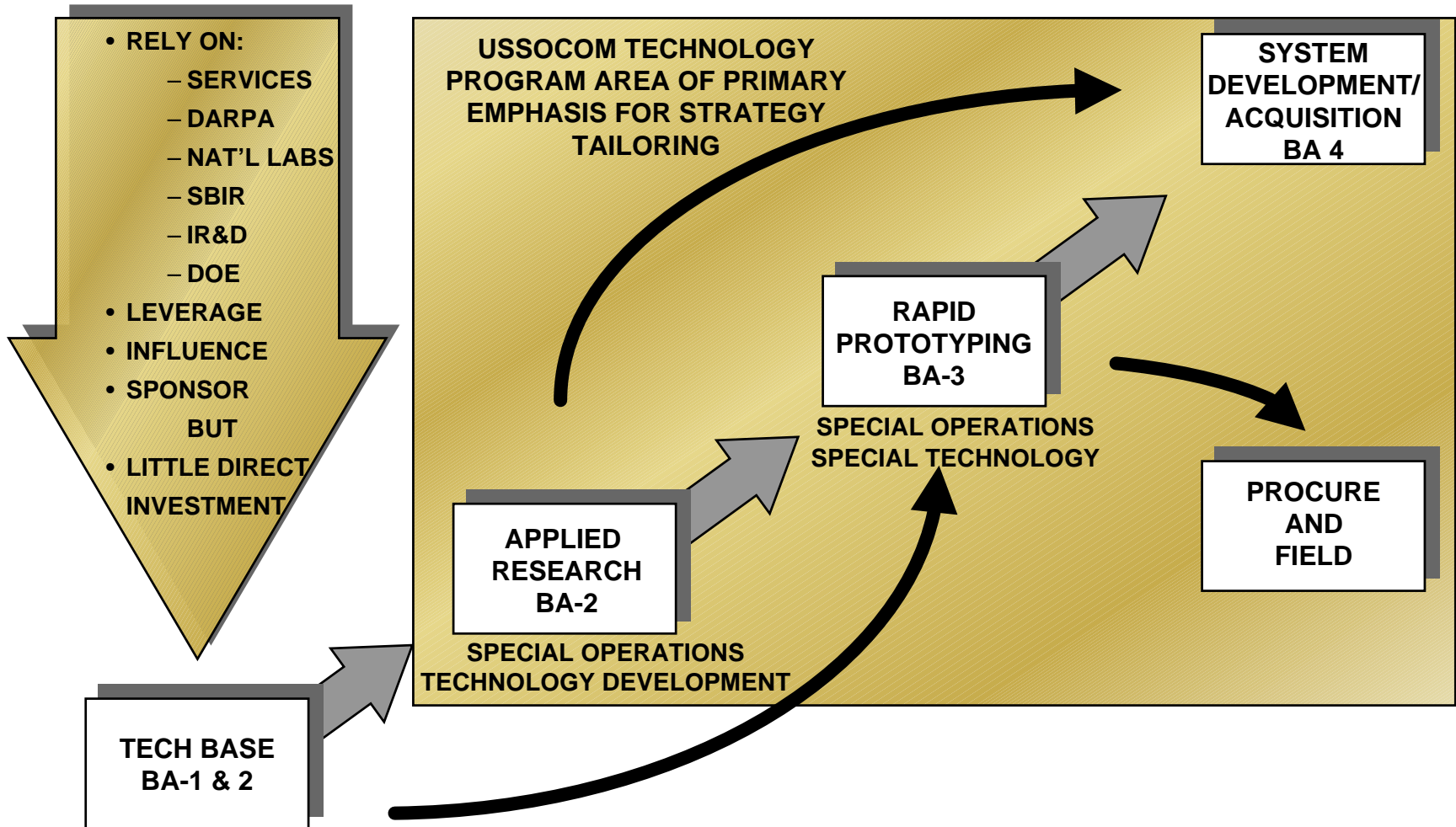
5

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**
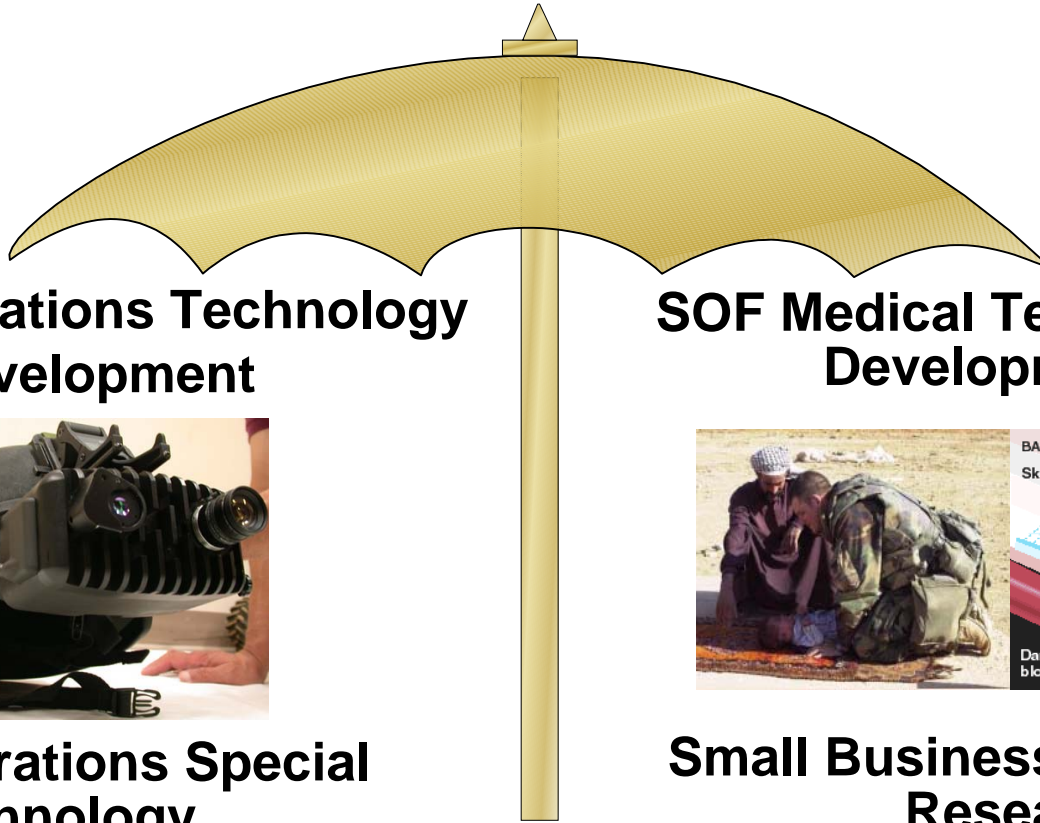- **Seek to Infuse Technology Into Concepts**

Evolutionary

Revolutionary

TAILORING TECHNOLOGY DEVELOPMENT STRATEGY

- **RELY ON:**
  - **SERVICES**
  - **DARPA**
  - **NAT'L LABS**
  - **SBIR**
  - **IR&D**
  - **DOE**
- **LEVERAGE**
- **INFLUENCE**
- **SPONSOR**
  BUT
- **LITTLE DIRECT INVESTMENT**

USSOCOM TECHNOLOGY PROGRAM AREA OF PRIMARY EMPHASIS FOR STRATEGY TAILORING

SYSTEM DEVELOPMENT/ ACQUISITION BA 4

RAPID PROTOTYPING BA-3

SPECIAL OPERATIONS SPECIAL TECHNOLOGY

APPLIED RESEARCH BA-2

SPECIAL OPERATIONS TECHNOLOGY DEVELOPMENT

PROCURE AND FIELD

TECH BASE BA-1 & 2

TECHNOLOGY PROGRAMS

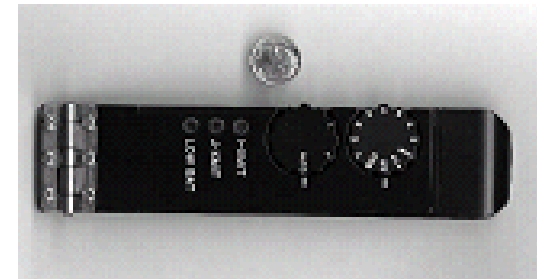**Special Operations Technology Development**

SOF Medical Technology Development

Special Operations Special Technology

Small Business Innovation Research

LEVERAGING TECHNOLOGY THRUST AREAS

SIGNATURE REDUCTION

BATTERIES/FUEL CELLS

UNMANNED SYSTEMS

ADVANCED TRAINING SYSTEMS

REMOTE SENSING

BIOENGINEERING

Partnering

Participation

Influencing

Endorsement

UNDERWATER COMMUNICATIONS

DIRECTED ENERGY WEAPONS

GREATEST OPPORTUNITY FOR OPERATIONAL PAY0FF

HIGH BANDWIITH/ REACHBACK COMMUNICATIONS

PSYCHOLOGICAL OPERATIONS

9

TECHNOLOGY ROADMAPS

- **Technology Roadmaps Link the Technology Base to Concept Based Requirements by Projecting Near-, Mid-, and Long-term Development Options**

- **Technology Roadmaps Are Being Developed For Each of the Technology Thrust Areas**
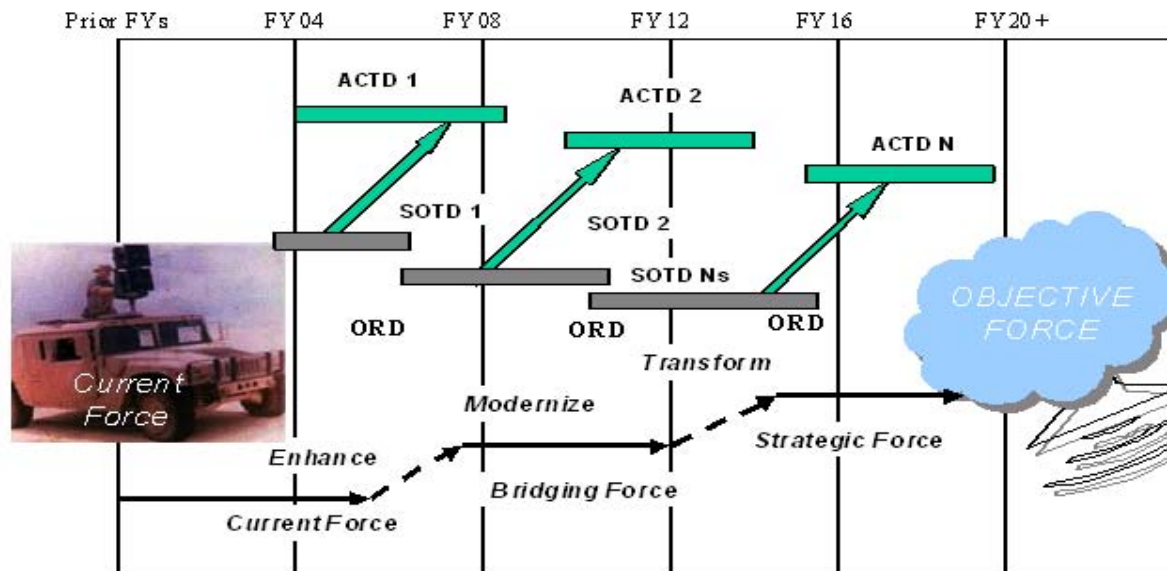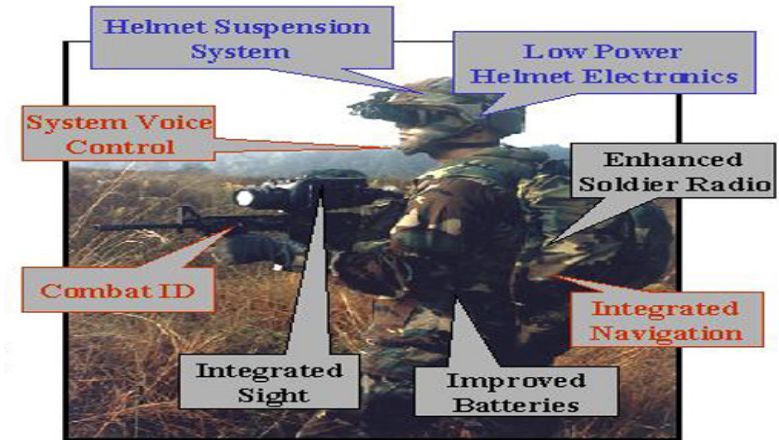
"INDIVIDUAL AS A PLATFORM"

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.

Projects:

• Antenna Enhancements

• Tactical Personal Computer

• LPI/LPD Imagery Link/Forwarding

• Man-Portable, Integrated GBS/JBS

# 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

REMOTE SENSORS
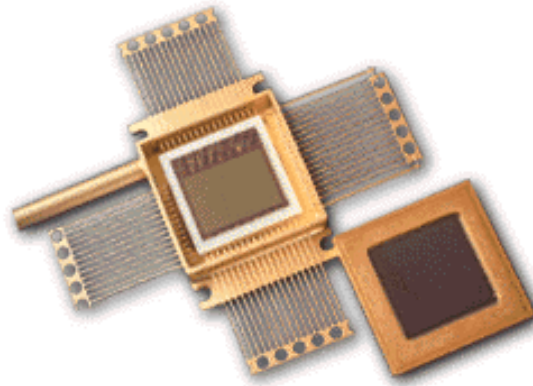
Capabilities/Areas of Concern:

• 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.
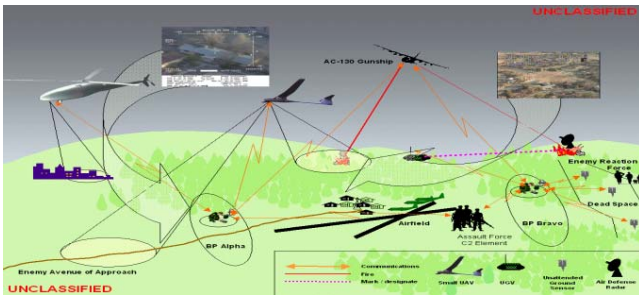
Projects:

• Miniaturized Robotics

• Micro Unmanned Vehicles

• Pointer UAV

• Modular Payload System
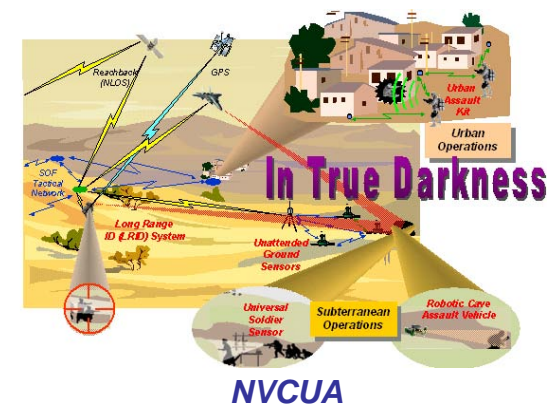
ADVANCED CONCEPT TECHNOLOGY DEMONSTRATION

ATL

PATHFINDER

REQUIREMENT/DESCRIPTION:
- OSD Program
- Provides USSOCOM With a Means for Integrating, Demonstrating, and Assessing New SOF-related Concepts and Technologies in a Joint Environment
- Typically Each Is a Two to Four Year Program Resulting In a Residual or Prototype for MUA, Logistically Supported for Two Years
- ACTDs Can Bridge the Gap Between Technologies and Acquisition
- SOAL-T Exercises Overall Coordination of USSOCOM Participation and Management Activities in the ACTD Program

MANPACK

PSYOP GLOBAL REACH

NVCUA

14
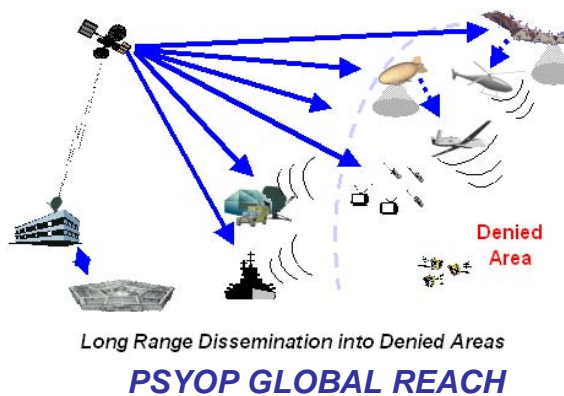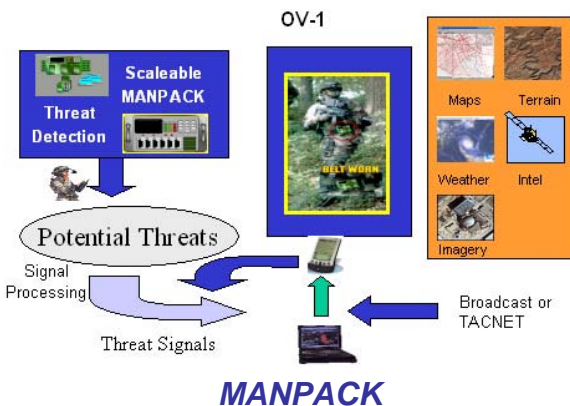
TECHNOLOGY MANAGEMENT AND TRANSITION MODEL (TMTM)

Concept Decision ◇

△ **A**

△ **B**

Design Readiness Review ◇

△ **C**

FRP Decision Review ◇

SOC&D & Others Concept Refinement | **SOD&D & Others Technology Development** | **System Development & Demonstration** | **PEO / PMO**

Production & Deployment LRIP/IOT&E | **Operations & Support**

TRL 3 | TRL 4 | TRL 5 | TRL 6 | TRL 7 | TRL 8 | TRL 9

TRL 1 - Discovery
TRL 2 – Formulation
TRL 3 – Exploration

Concept Refinement	Development	Demonstration (Relevant Environment)	Integration	Demonstration (Operational Environment)	Production/ Manufacturing

PURPOSE

- *Provide a Process* that supports planning, conducting, managing and transitioning Technology Programs for acquisition and fielding
- *Establish Success Criteria* in line with the use of Technology Readiness Levels (TRL) and DoD Acquisition Policies
- *Standardize* planning, documentation, execution and review of Technology Programs
- *Provide Improved Transition* of technologies into Acquisition Programs
- *Provide for PEO/PM & USER Involvement* early on and throughout the process

URGENT DEPLOYMENT ACQUISITIONS

CMNS Requirement	IOC
Laser Targeting Devices	7 days
Remote Camera Controller	11 days
Coalition Video Teleconferencing	4 wks
All Terrain Vehicles	5 wks
Standoff Explosive Detection System	7 mos
Man-Portable Decontamination	10 mos
Small Unmanned Aerial Vehicles	6 mos
Leaflet Delivery System	8 mos
Remote Observation Post	9 mos
Personnel Tracking System	6 mos
HAVE CSAR (Search & Rescue Tool for MH-47Ds)	6 mos
Remote Weather Station	7 days
Safe House – Force Protection Equipment	21 days
AC-130 All Light Level TV Replacement	Est 23 mos
Hardened Sport Utility Vehicles	6 wks
Specific Emitter Identification	5 mos
Individual Thermal ID Devices	12 wks
VHF Repeater For IntraTeam Communications	12 wks

16

SOME NOMINATED TOPIC AREAS FROM FY05 SELECTION PROCESS

- **All Terrain and All Environment Kit to Negotiate Obstacles**

- **Advanced Fuel Cells**

- **Advanced Composite Ballistic Protection**

- **Improved Data Compression/Waveform Program**

- **Advanced 3D Imaging Systems**

- **Enhanced Antennas**

- **Advanced Reconnaissance and Surveillance Equipment**

- **Enhanced Signature Suppression for 5.56mm & 7.62m LMG**

WHERE WE'RE GOING

- **Respond to Commander's Vision**
- **Develop Technology Roadmaps**
- **Develop New Investment Strategy**
- **Anticipate User Needs**
- **Leverage Advanced Technology From Service Labs, DARPA and DOE**
- **Develop Initiatives to Rapidly Transition Technology Programs Into Acquisition**

SUMMARY

- **To Focus Technology on the Global War on Terrorism (GWOT) and Other Areas of High Operational Payoff for the Warfighter**

- **To Support the Troops in the Field With Leap-ahead Technologies That Give Them the Operational Advantages They Need**

- **We Support SOF Transformation to Meet Desired Operational Capabilities**