

# Simulation, Training and Instrumentation Command

*Briefing to*

*GEN Shinseki*

*Presented By*

*Brigadier General*

*William L. Bond*

*Commanding General*



*December 7, 1999*

*“STRICOM ... On Point for the  
Army in Modeling and  
Simulation”*



## *STRICOM Mission Focus . . . What We Do for the Army*

**Provide Training & Test Simulation, Simulators, Target and Instrumentation Products & Services**

**Create a Common Synthetic Environment to Test Notional Concepts & Support R&D Designs**

**Support Weapon System Research, Development and Acquisition**

**Develop and Sustain Warfighting Skills**

**Provide Materiel Life Cycle Support from Concept Development through Disposal**

*Providing Commanders  
the Tools to Support the  
Soldier!*



# STRICOM History

1950    1965    1974 - 76    1988    1990    1992    1992-93    1993-97

Army Participation Group Formed at Long Island, NY by Coordination of Army and Navy Secretariats

PM Training Devices Moved to Central Florida Research Park

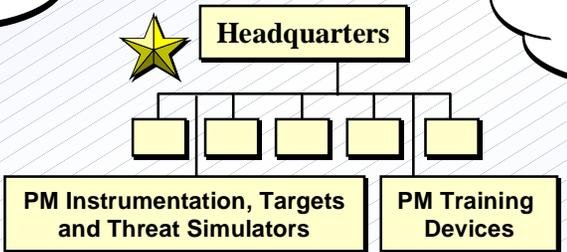
Put Training Devices and Instrumentation, Targets, Threat Simulators Together & added a Headquarters

Army Participation Group Moved to Orlando, FL

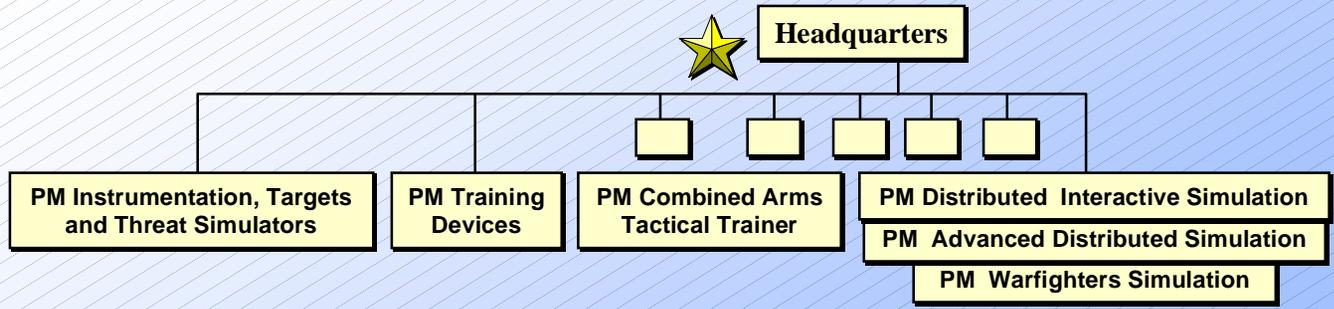
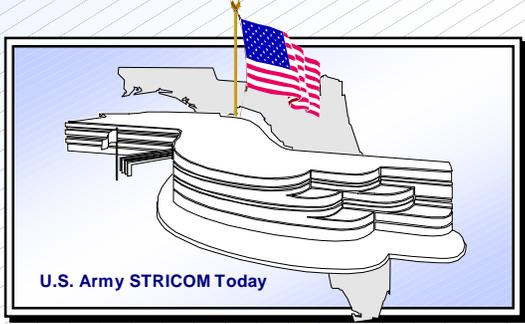
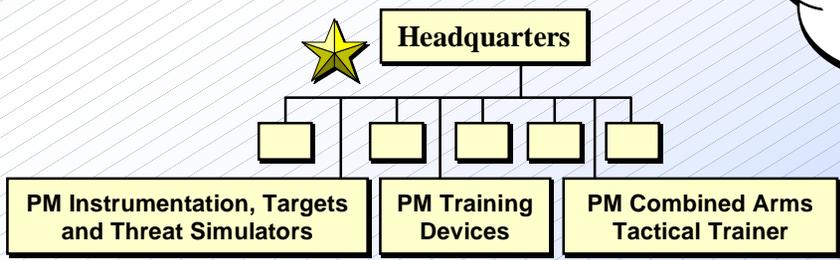
PM Training Devices Moved to Orlando, FL  
Army Training Device Agency Dissolved

Added Combined Arms PM For Collective Training

Army Participation Group Changed to Army Training Device Agency  
PM Training Devices Formed at Ft Benning, GA



Added PM Distributed Interactive Simulation (1991 Army Science Board Study)



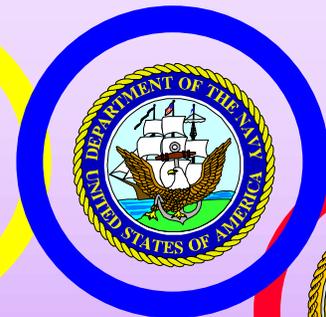


# Team Orlando

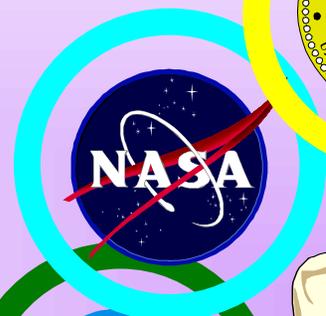
**Army Simulation Training & Instrumentation Command**  
( 555 employees)



**Naval Air Warfare Center Training Systems Division**  
(1,026 employees)



**NASA/ Kennedy Space Center**  
(2,500 employees)



**Marine Corps Program Office**  
(23 employees)



**Industry**  
(16,000 employees)



**Air Force Agency for Modeling & Simulation**  
(57 employees)



**University Of Central Florida & Institute for Simulation & Training**  
(100 employees)



**United States Coast Guard**  
(1 employee)



**Joint Simulation System**  
(35 employees)



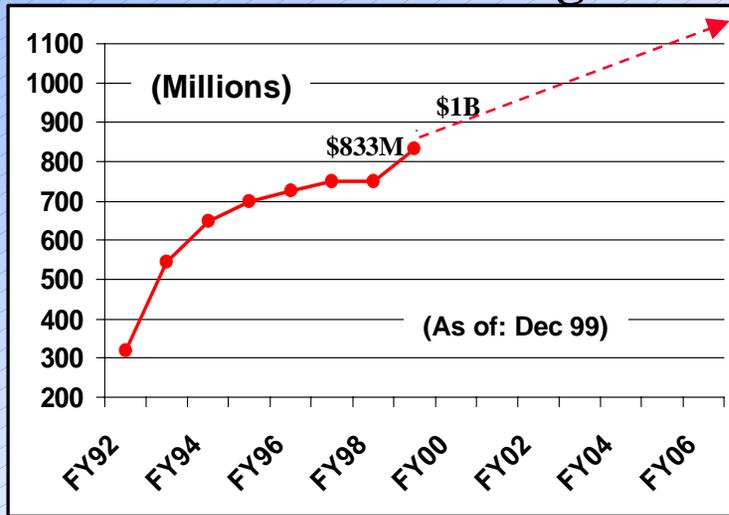
**Army Research Institute**  
( 17 employees)



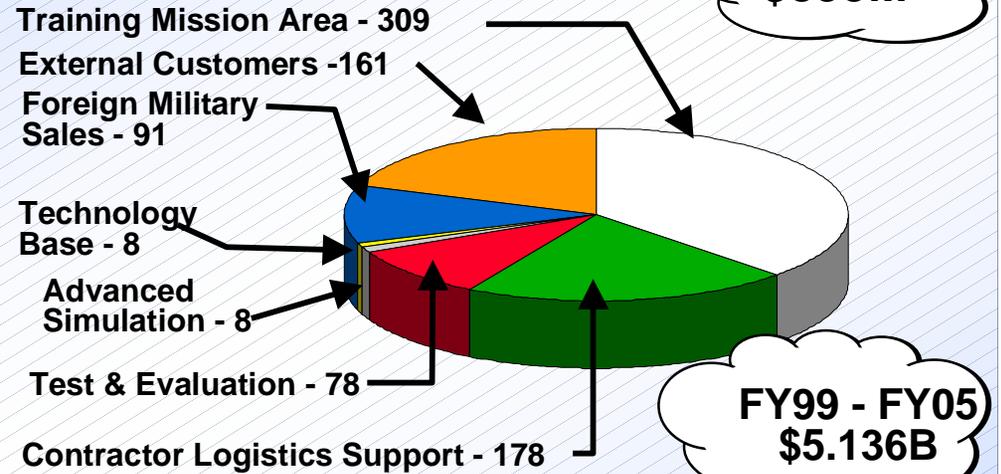


# Resources

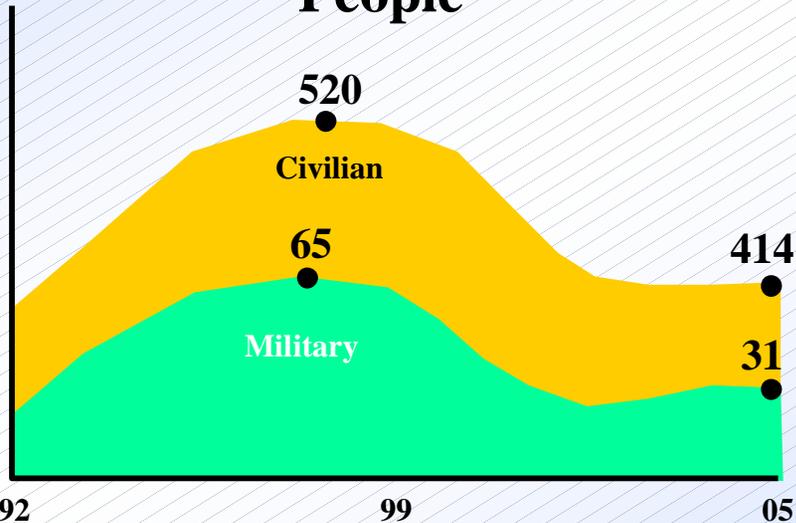
## Total Funding



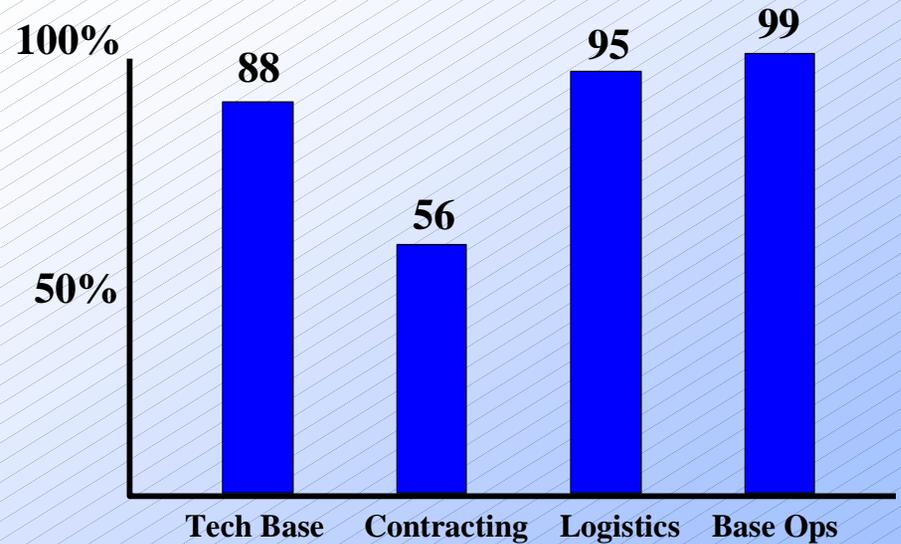
## FY 99 Breakout



## People



## Outsourcing





# STRICOM Funding

**Best Value in Army - 1.83% O/H**

- 289M Training Mission Area
- 8M Advanced Simulation Technology
- 8M Tech Base
- 178M Worldwide Contractor Logistics Support
- 78M Test and Evaluation
- 20M Other OMA
- 91M Foreign Military Sales

**161M Reimbursable Work**

Unexpected Growth

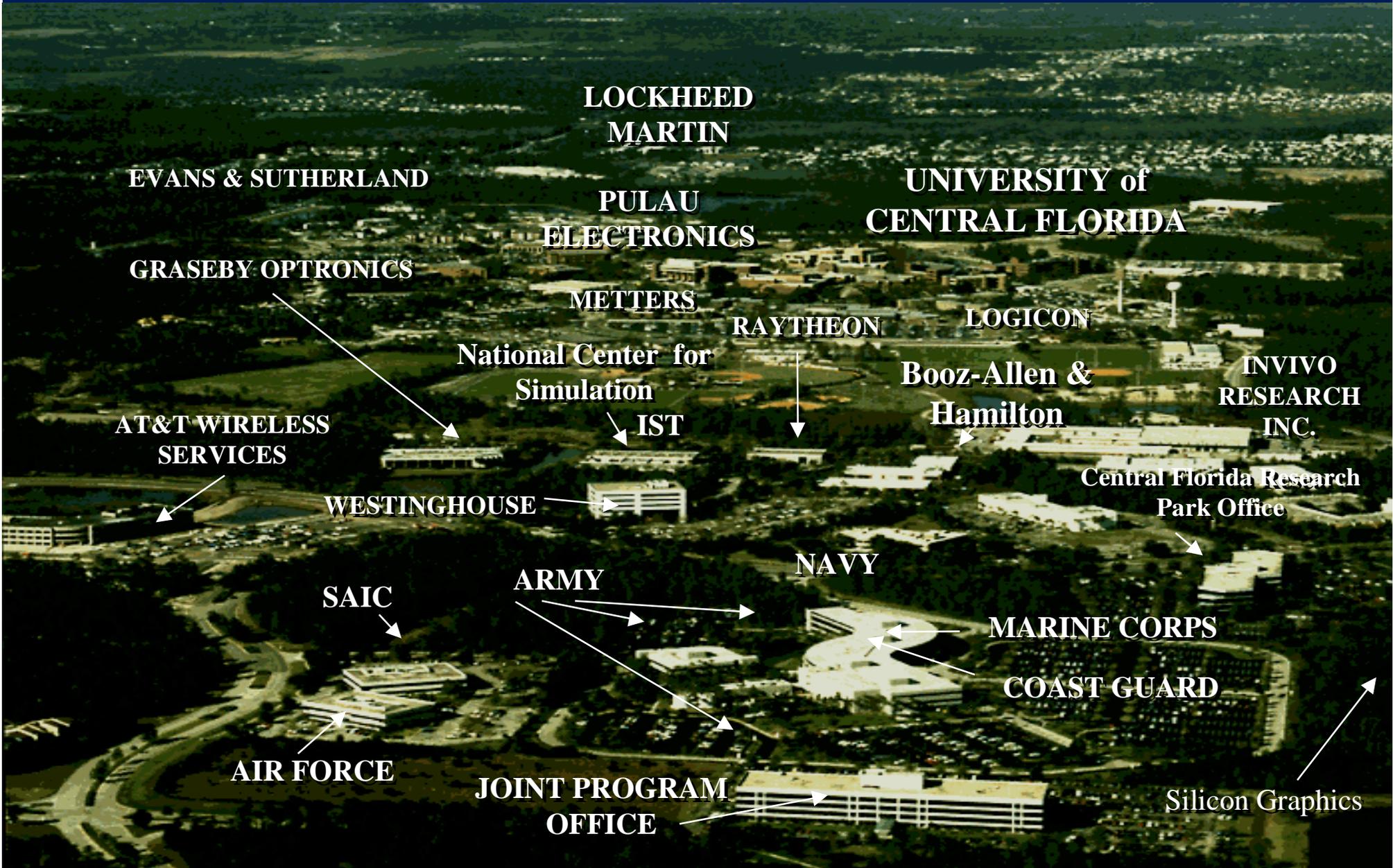
**FY99 Total \$833M**

**Project \$1B  
in FY00**

- ✓ PEO Aviation
- ✓ PEO Air and Missile Defence
- ✓ PEO Command and Control
- ✓ PEO Ground Combat and Support Systems
- ✓ PEO Intelligence, Electronic, Warfare and Sensors
- ✓ PEO Tactical Missile
- ✓ Special Operations Command
- ✓ DSA for Army Tank Automotive
- ✓ DSA U.S. Army Soldier Biological Chemical Command
- ✓ DSA U.S. Army Aviation and Missile Command



# National Center of Excellence for Simulation





# Value of Modeling and Simulation

**Trained to a Constrained System Capability**

Costly	Potentially Dangerous	Geographic & Environment Constraints
	Resource Intensive	
<b>Without Simulation</b>		

**Trained to an Unconstrained System Capability**

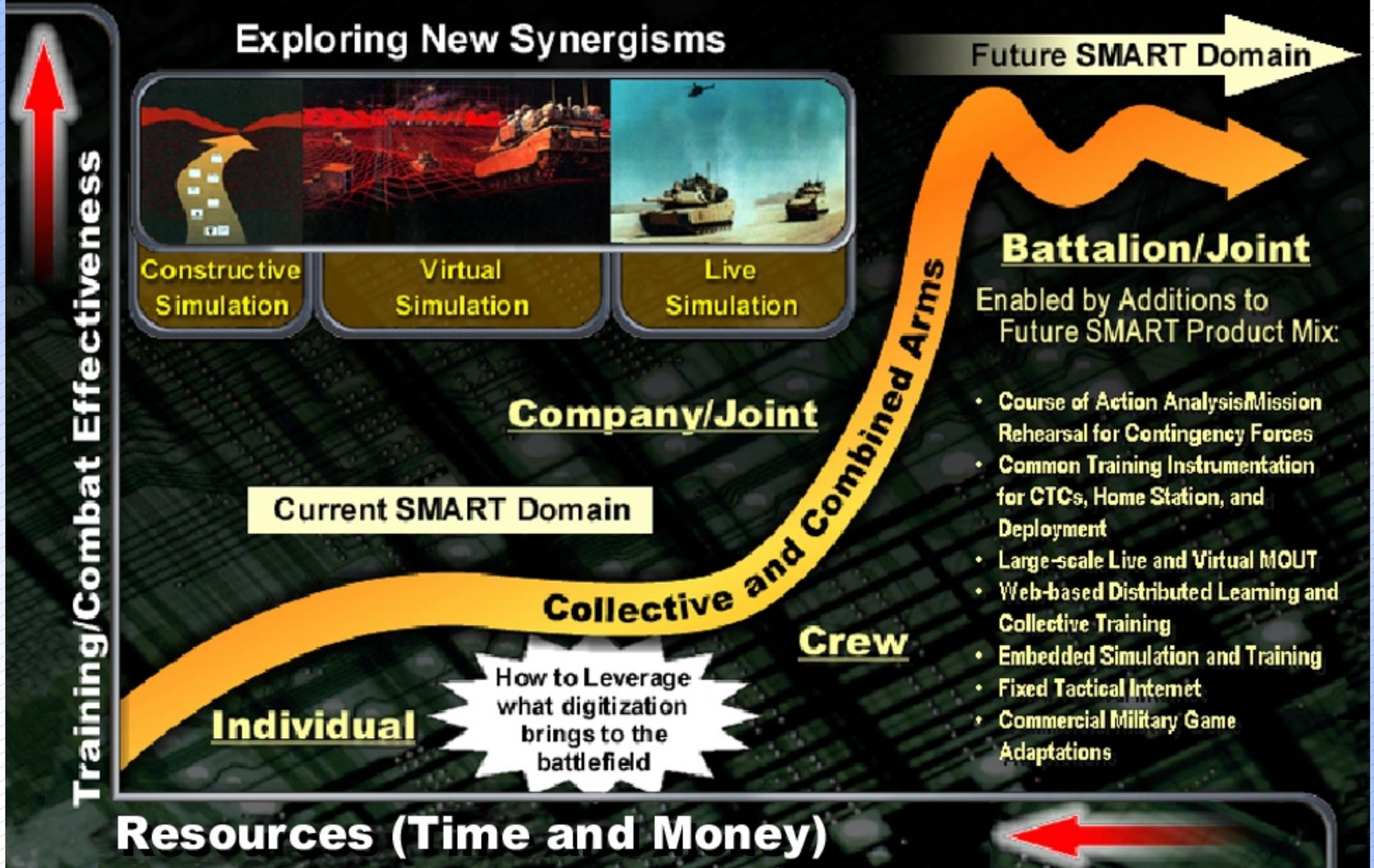
**With Simulation**

	W/O Simulation	W/ Simulation	Effectiveness
<b>Close Combat Tactical Trainer (CCTT)</b>	@ NTC	@ NTC	89% More Effective.
<i>CCTT Units Out-performed the Non-CCTT Units ( 89% - 24 of 27 Tasks ).</i>			
<b>Helicopter Training (1.0 hrs)</b>	\$ 173,000	\$ 125	?
<i>Increased Repetitions Increased Retention</i>			
<b>Tank Gunnery Exercise</b>	\$ 21,000	\$ 11	25% Faster.
<i>Clear Advantage with COFT at Ft Knox</i>			
<b>ABRAMS Tank Driver Trainer (1.0 mile)</b>	\$ 75	\$ 5	?
<i>Environmentally Friendly</i>			
<b>Missile Test Firing</b>	1 Fire	16,000 Fires	?
<i>Increased Accuracy of System</i>			
<b>Missile Performance Data Curve</b>	5 Data Points	15,000 Data Points	?
<i>Increased Lethality of System</i>			
<b>Simulation Based Weapon Design Aircraft Parts</b>	2000 hrs	700 hrs	?
<i>Less Re-Work</i>			
<b>Comanche Office Virtual Prototyping</b>	\$500M	\$20M	?
<i>40 % Reduction in Time to Production/Quicker Release to the Field</i>			

Reference: Army Model and Simulation Office / Defense Modeling and Simulation Office 1995 - 1998 Benefits Analysis



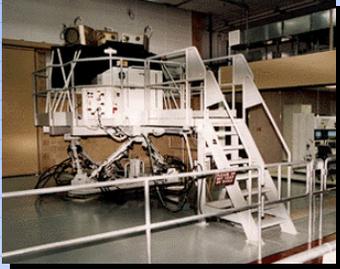
# Leveraging Digitization





# Our Program Portfolio

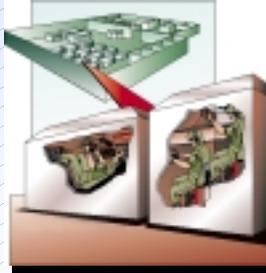
**Systems Training Devices**



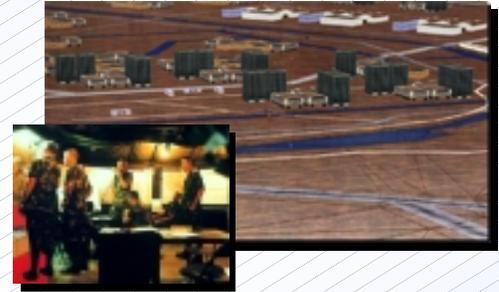
**Non-Systems Training Devices**



**Combined Arms Virtual Trainer**



**Constructive Simulations**



**Core DIS Facilities**



**CTC Instrumentation**



**160 Programs**

**S & T Base**



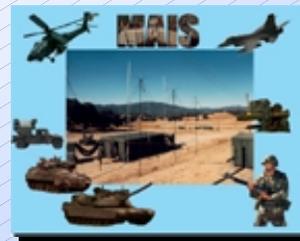
**Targets**



**Threat Simulators**



**Test Instrumentation**



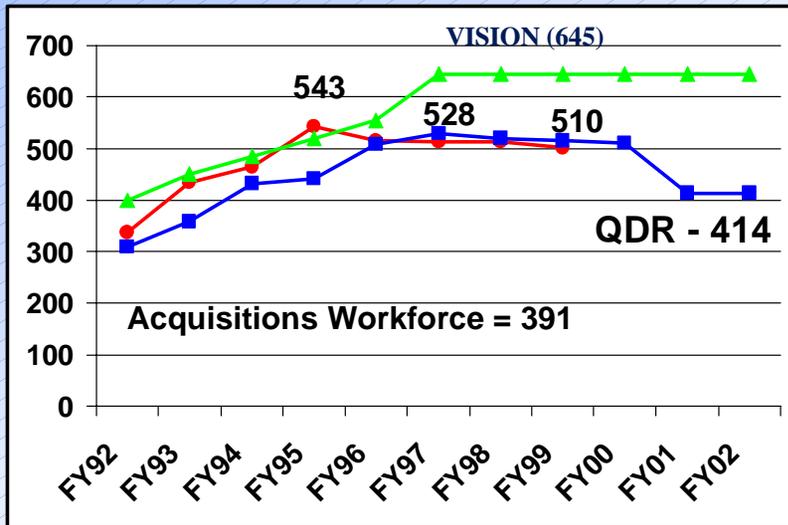
**CTC OPFOR**





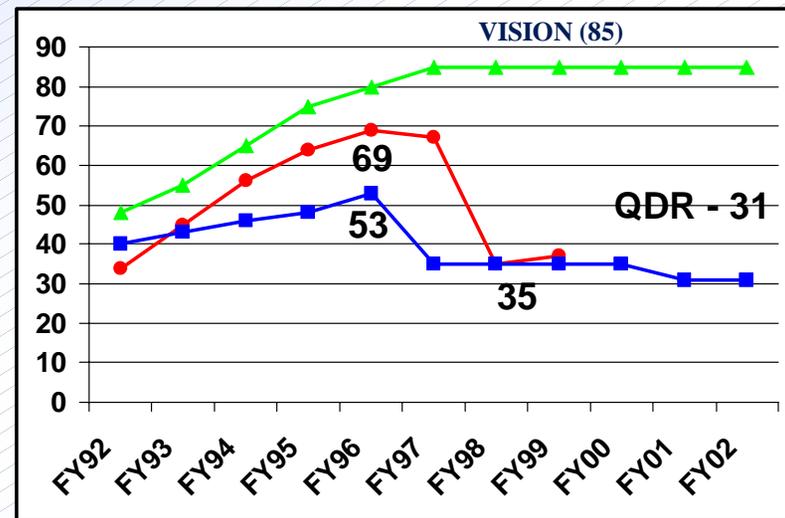
# Resources

Manpower & Staffing (civilian manpower)



- Civilian On-Board-Strength
- Civilian Authorized

Manpower & Staffing (military manpower)

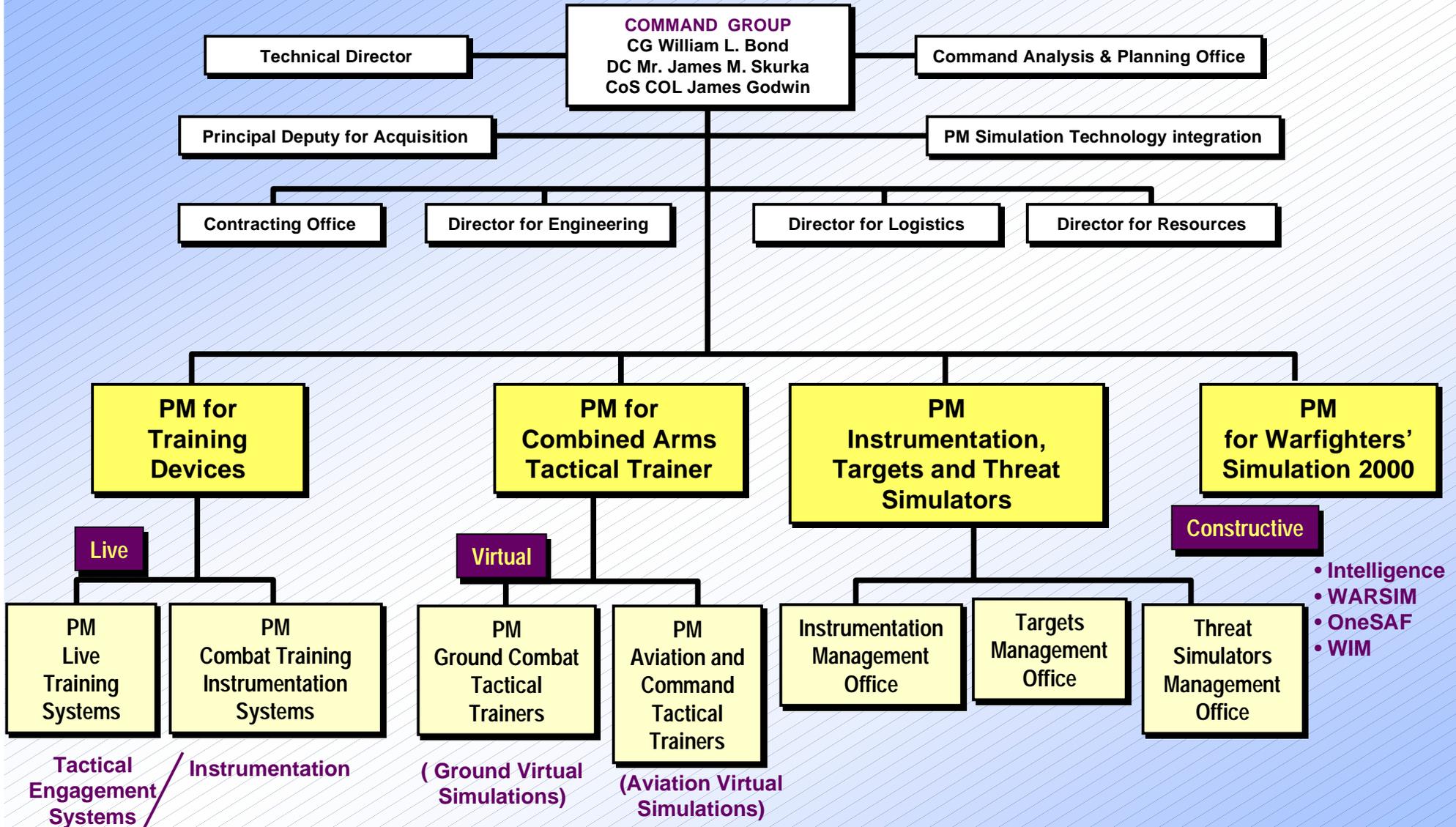


- Military On-Board-Strength
- Military Authorized

VERA AUTHORITY

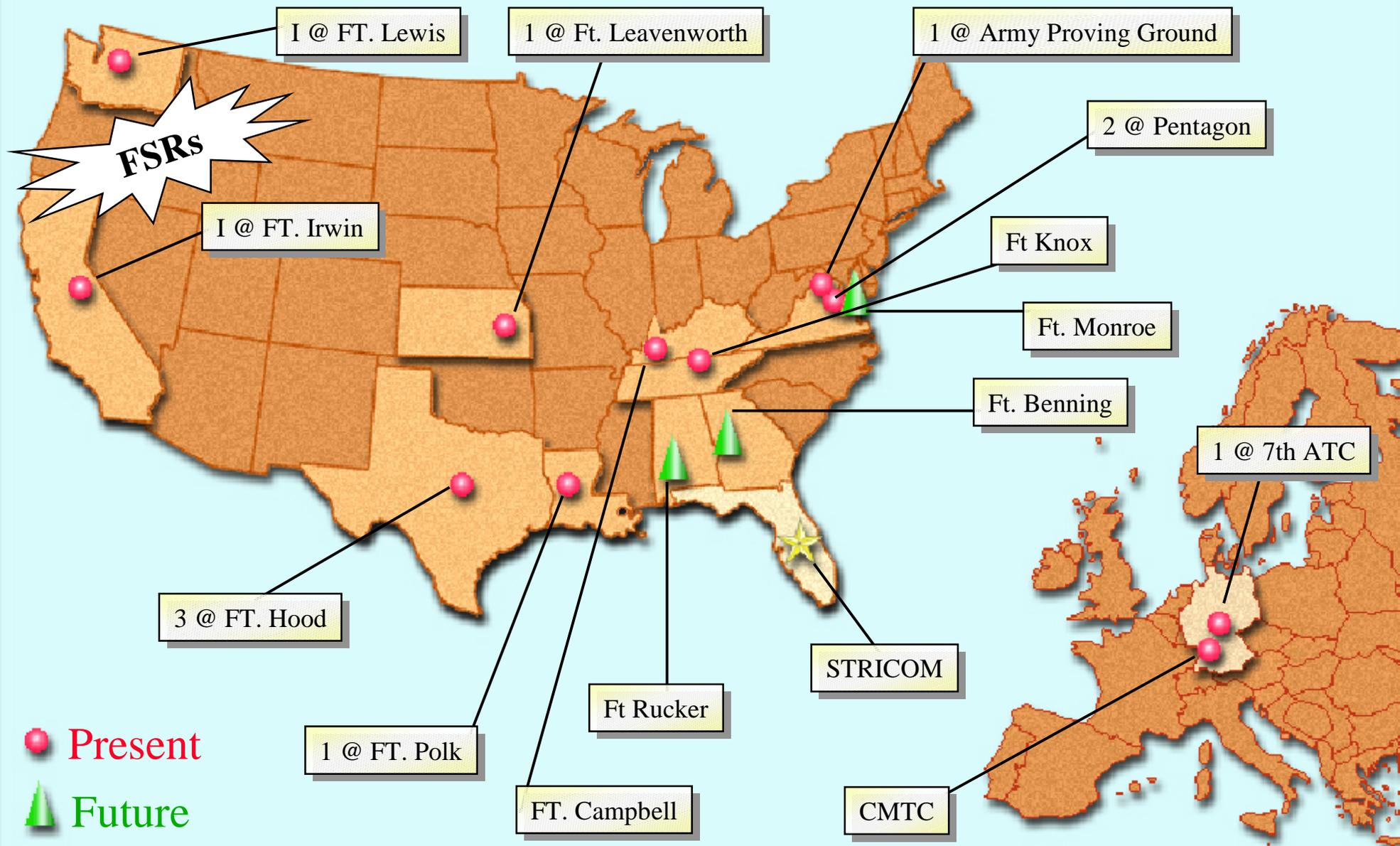


# Present STRICOM Organization





# AMC's Face to the Field - Liaison Officers





# Project Manager for Training Devices (PM TRADE)



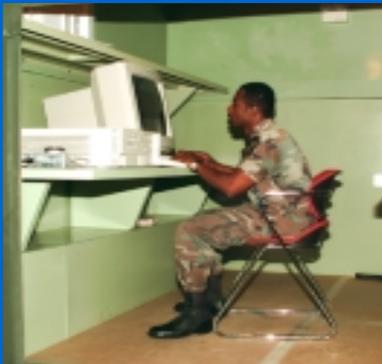
## PM Combat Training Instrumentation System (CTIS)

- National Training Center Objectives Institution System (NTC-OIS)
- Joint Readiness Center Objective Instrumentation System (JRTC-IS)
- Homestation Instrumentation System (HITS)
- Maneuver / CTC Army Battle Command System Integration
- Military Operations in Urban Terrain (MOUT)



## PM Live Training Systems (LTS)

- Multiple Integrated Laser Ensemble (MILES / MILES 2000)
- Simulated Area Weapons Effects (SAWE / MILES II)
- Air Ground Engagement System (AGES / AGES II)
- Tank Weapons Gunnery Simulation System / Precision Gunnery System (TWGSS / PGS)
- One Tactical Engagement Simulation System (OneTESS)



## APM Digitized Training (DT)

- Lead Development and Fielding of Advanced Distributed Leading Technologies and Instructional Programs which Support
  - Individuals
  - Teams
  - Collective Military Training
- Web Based Training
- Application of Gaming Industry Technologies
- PC Based 3D Graphics





# *Project Manager for Combined Arms Tactical Trainer (PM CATT)*



## **AIR AND COMMAND TRAINING SYSTEMS (ACTS)**

- Aviation Combined Arms Tactical Trainer (AVCATT-A)
- Special Operations Aircraft
- AH-64A Apache Combat Mission Simulator
- Combat Synthetic Training Assessment Range
- Intel. and Elect. Warfare Tactical Proficiency Trainer



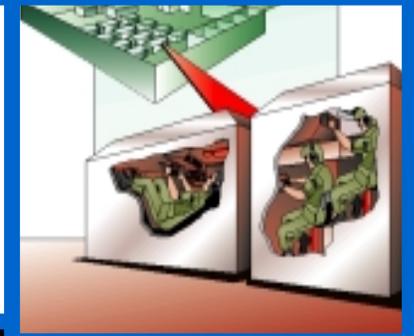
## **GROUND COMBAT TRAINING SYSTEMS (GCTS)**

- Fire Support Combined Arms Tactical Trainer (FSCATT)
- Advanced Gunnery Training System (AGTS)
- GRIZZLY & WOLVERINE Trainers
- Tank Driver Trainers (TDT)
- Engagement Skills Trainer (EST)
- Foreign Military Sales (FMS)



## **ASSISTANT PROJECT MANAGER - CLOSE COMBAT TACTICAL TRAINER (APM CCTT)**

- Close Combat Tactical Trainer (CCTT)
- Synthetic Environment - Core
- Cooperative Development with UK CATT





# Project Manager for Warfighter Simulation (PM WARSIM)



## WARSIM

- PM for Warfighters' Simulation 2000
- WARSIM Intelligence Module (WIM)
- Tactical Simulation (TACSIM)

## Legacy Systems

- Aggregate Level Simulation Protocol
- Corps Battle Simulation (CBS)



## Command Control Communication Computer Information Simulation Systems Office (C4ISS)

- One Semi - Automated Force (OneSAF)
- Synthetic Theatre of War-Architecture (STOW-A)
- Command Integration of C4I





# Project Manager for Instrumentation, Targets and Threat Simulators (PM ITTS)



## INSTRUMENTATION OFFICE

- Manage the Development, Acquisition, and Fielding of Major Test Instrumentation Systems Used for Developmental and Operational T&E
- Smart Munitions Test Suite (SMTS)
- Mobile Automated Instrumentation Suite (MAIS)



## TARGETS MANAGEMENT OFFICE

- MQM-107 "STREAKER" Aerial Target
- HIND-E Full Scale Rotary Wing target
- QF- 4 Full Scale Fixed Wing Target



## THREAT SIMULATOR MANAGEMENT OFFICE

- Command, Control and Communication (C3) Systems
- Surface-to-Air Missile (SAM) Systems
- Threat Aviation Systems

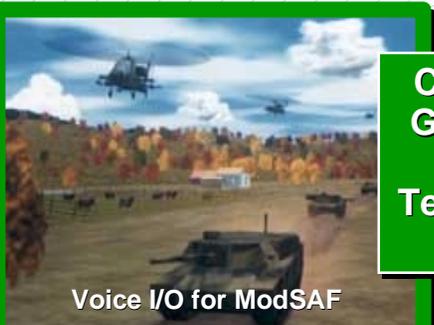
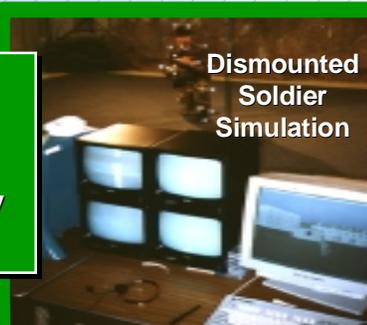




# Focused Science & Technology Base

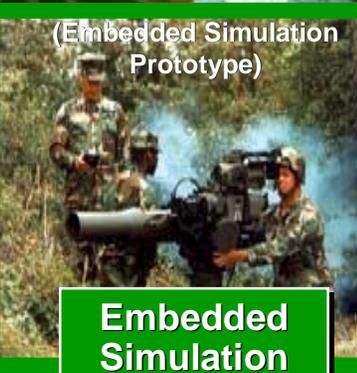
**\$8M Direct Funded 6.2 Program**

**Individual Combatant Simulation Technology STO**



**Computer Generated Forces Technology STO**

**Advanced Tactical Engagement Simulation STO**



**Embedded Simulation Technology STO**



**Advanced Distributed Simulation Technology**

**University Affiliated Research Center (UARC)**

**Direct Funds Are About 2% of STRICOM's RDA Program Portfolio**

**Virtual Technology Leveraging...**

**UCF's Institute for Simulation & Training**

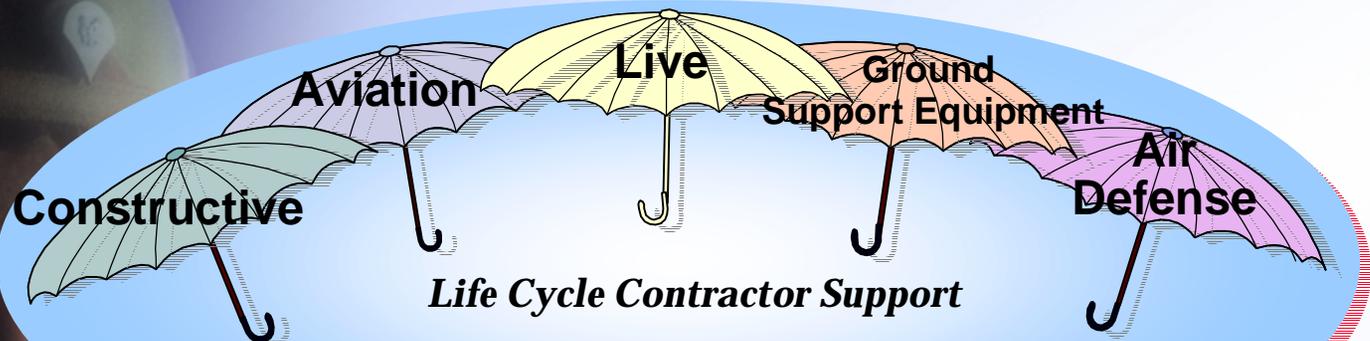
**\$3M Small Business Innovations Research (SBIR) Projects**

**\$10M DARPA Funding for Advanced Simulation Technology Thrust (ASTT)**

**\$8M Defense Modeling & Simulation Office.**



# STRICOM Logistics



**ALLOWS STRICOM TO...**

~~Depot~~

~~IMMC~~

~~Inventory~~

~~CCSS~~



**Support the Soldier**

BLANKET THE CUSTOMER

- ON-SITE SUPPORT
- DIRECT COMMUNICATIONS
- (STRICOM/CUSTOMER)
- QUALITY PEOPLE (RETIRED MIL.)

FOCUS ON:

- CUSTOMER SATISFACTION
  - ANTICIPATE NEEDS
  - WRITE A FLEXIBLE CONTRACT
- READINESS
- UTILIZATION
- COST REDUCTION



# LCCS Worldwide Total Program

## ALASKA

2 Locations  
3 Contracts  
9 Technicians

## MEXICO

1 Location  
1 Contract  
2 Technicians

## CONUS

37 Locations  
7 Contracts  
1384 Technicians

## EUROPE

16 Locations  
6 Contracts  
251 Technicians

## HAWAII

2 Locations  
2 Contracts  
9 Technicians

STRICOM  
Orlando, FL

Management Oversight by:  
DA DCSOPS  
TRADOC

## BALKANS

5 Locations  
1 Contract  
8 Technicians

## KOREA

4 Locations  
6 Contracts  
57 Technicians

## PANAMA

1 Location  
1 Contract  
2 Technicians

## MIDDLE EAST

4 Locations  
3 Contracts  
8 Technicians

**FY99 Program  
\$178 Million**



# Life Cycle Contract Support Worldwide Total Program

**FY98  
\$174M**



Alaska

1 Location  
4 Contracts  
8 Technicians

Mexico

1 Location  
1 Contract  
2 Technicians

Hawaii

1 Location  
4 Contracts  
9 Technicians

CONUS

75 Locations  
13 Contracts  
1243 Technicians

Europe

7 Locations  
9 Contracts  
237 Technicians

Bosnia / Hungary

6 Locations  
1 Contract  
6 Technicians

Panama

1 Location  
1 Contract  
1 Technician

Korea

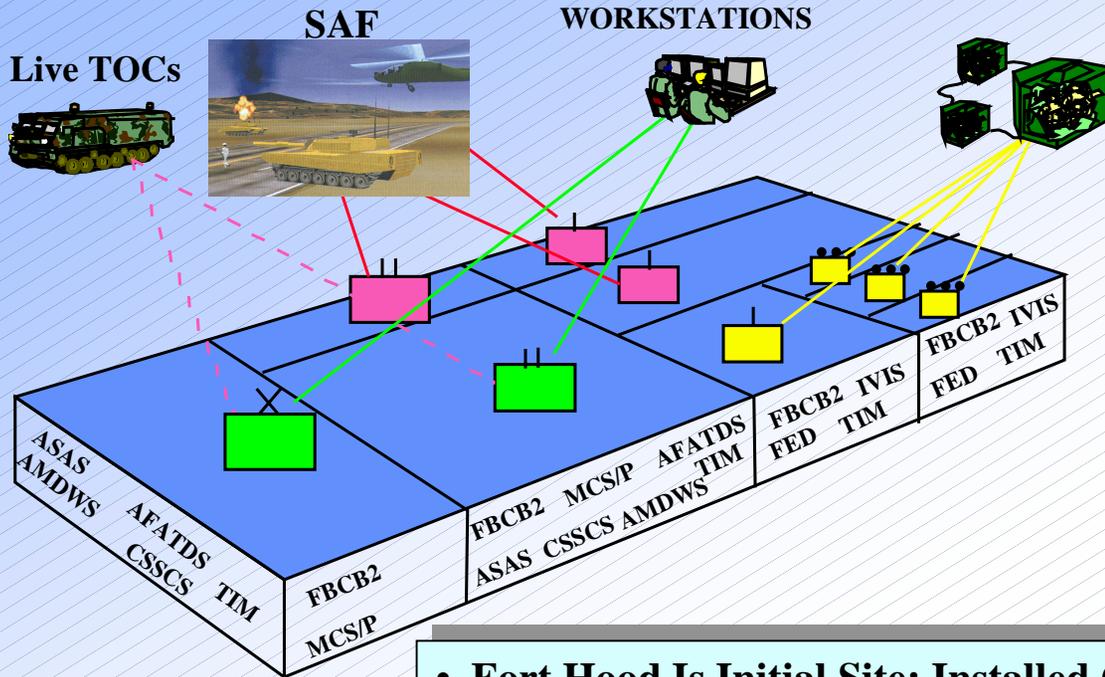
2 Locations  
7 Contracts  
50 Technicians

Middle East

4 Locations  
3 Contracts  
8 Technicians



# CCTT XXI



- **Fort Hood Is Initial Site; Installed Capability:**
  - 10 M1A1(D)    - 12 M2A2 ODS (D)    - 2 HMMWV (FBCB2)
- **Follow-On Efforts Include:**
  - **Interface with ATCCS Systems**
  - **Migration of CCTT Workstation Function to the SAF Workstations**
  - **Expansion of SAF Behaviors**
  - **Fielding of CCTT Digitization to Other CCTT Sites**



# Aviation - Combined Arms Tactical Trainer (AVCATT-A)

## Active Component Unique Requirements



RAH-66\*



Digitized TOC

\*Currently an option in the AVCATT-A Contract

**AVCATT-A Contract  
Awarded On 26 Oct 99  
To Raytheon Corp.**

## Common Requirements



AH-64A



OH-58D (KW)



CH-47D



UH-60L



AH-64D



- Virtual Manned Simulators
- Networked/HLA Compliant
- CCTT Interoperable
- Fully Mobile
- Reconfigurable

## Reserve Component Unique Requirements



AH-1F



UH-1H



Conventional TOC

\*\*SE CORE: AAR, BattleMaster Control, and SAF Workstations, and appropriate Terrain Databases.



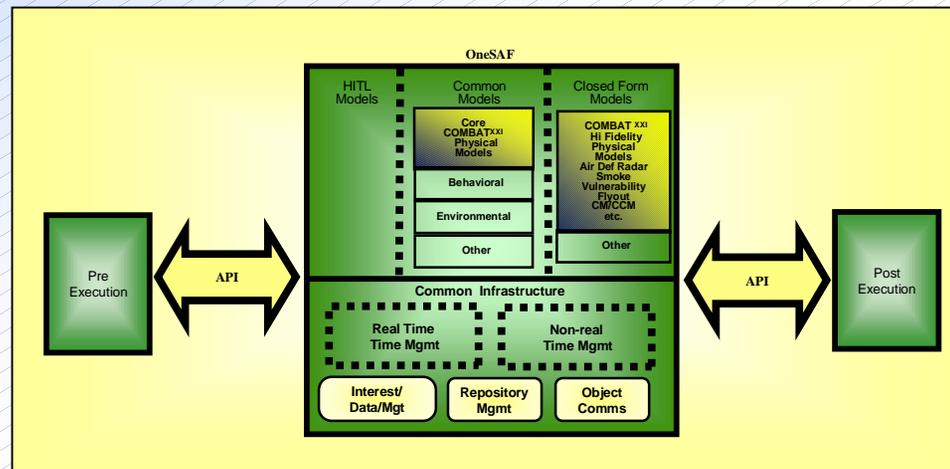
# OneSAF

## OneSAF Testbed Baseline

The Domains have designated 29 User labs across the United States.

### Current Status:

- 3 OTB build releases
- 2 OTB version releases
- **OneSAF Testbed Baseline Version 1.0 (August 2000) replaces ModSAF.**
- Provides a vehicle for User feedback
- Reduce risk by integrating new technology that addresses high risk areas in the objective OneSAF system



## Objective OneSAF system

A composable, next generation CGF that can represent a full range of operations, systems, and control process (TTP) from entity up to brigade level, with variable level of fidelity that supports all M&S domain (ACR, RDA, TEMO) applications with an emphasis on human-in-the loop and no human in-the-loop.

On the road to success

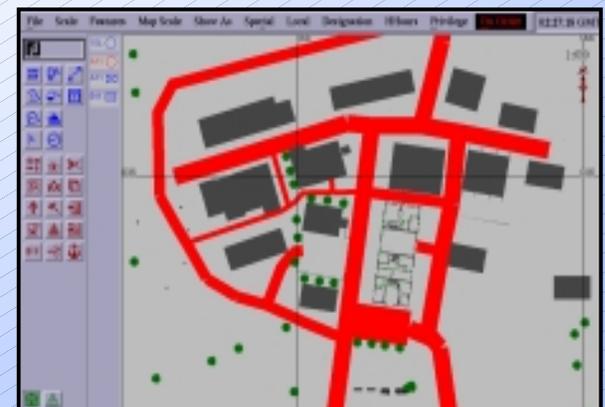
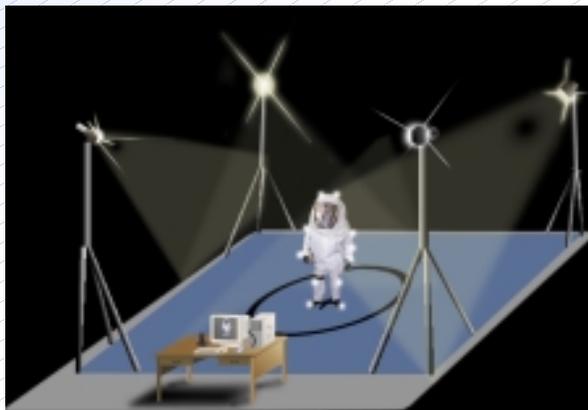


# Virtual Emergency Response Training System

- **STRICOM and ARNG Project**
- **Prepares Civil and Military Authorities to deal with Weapons of Mass Destruction**



- **Reuses and Leverages Existing STRICOM Projects:**
  - **Combat Trauma Patient Simulator**
  - **Dismounted Infantry Semi-Automated Forces**
  - **Immersive Station**
  - **Virtual Urban Environments**





# *AMC/STRICOM's Face to the Field*

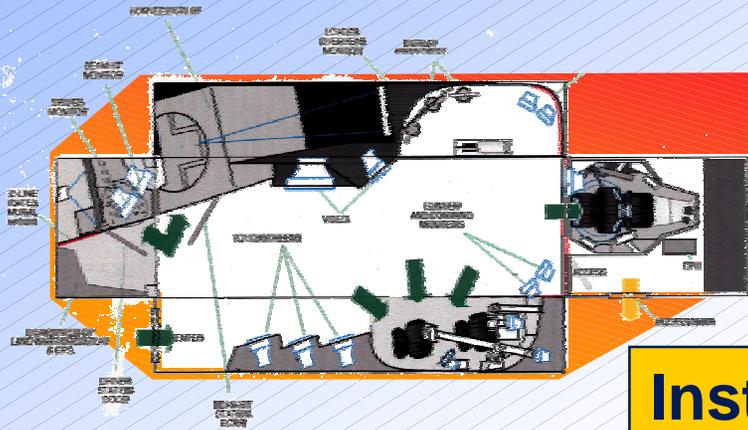
- **Support to Recruiting**
- **Collaboration with Industry**
- **Army Wide Presence**
- **Bosnia Support**
- **Fixed Tactical Internet**
- **Partnership for Peace**
- **Aviation Training**
- **Interservice/Industry Training Simulation and Education Conference (IITSEC)**



# STRICOM Support to Recruiting

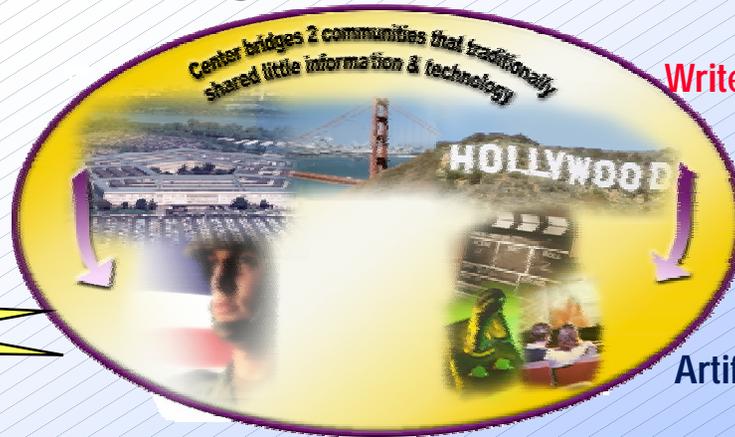
## Armor Experience Van

- Integration of M1A2 and HMMWV Modules in Van



## Institute for Creative Technologies

- Hollywood / Gaming Connection



Writers / Character Builder

Immersive Audio

Dialogue Generation

Artificial Intelligence

**ALTERNATIVES?**

- Out of Hyde support
- Limited discretionary funds available
- \$50K FY99



# Collaboration with Entertainment Industry

Center bridges 2 communities that traditionally shared little information & technology



## Army Needs

- Training
- Analysis
- Acquisition

- Immersion technology
- Networked simulation
- Computer generated characters
- Tools for generating synthetic natural environment
- Standard for interoperability

## Entertainment Needs

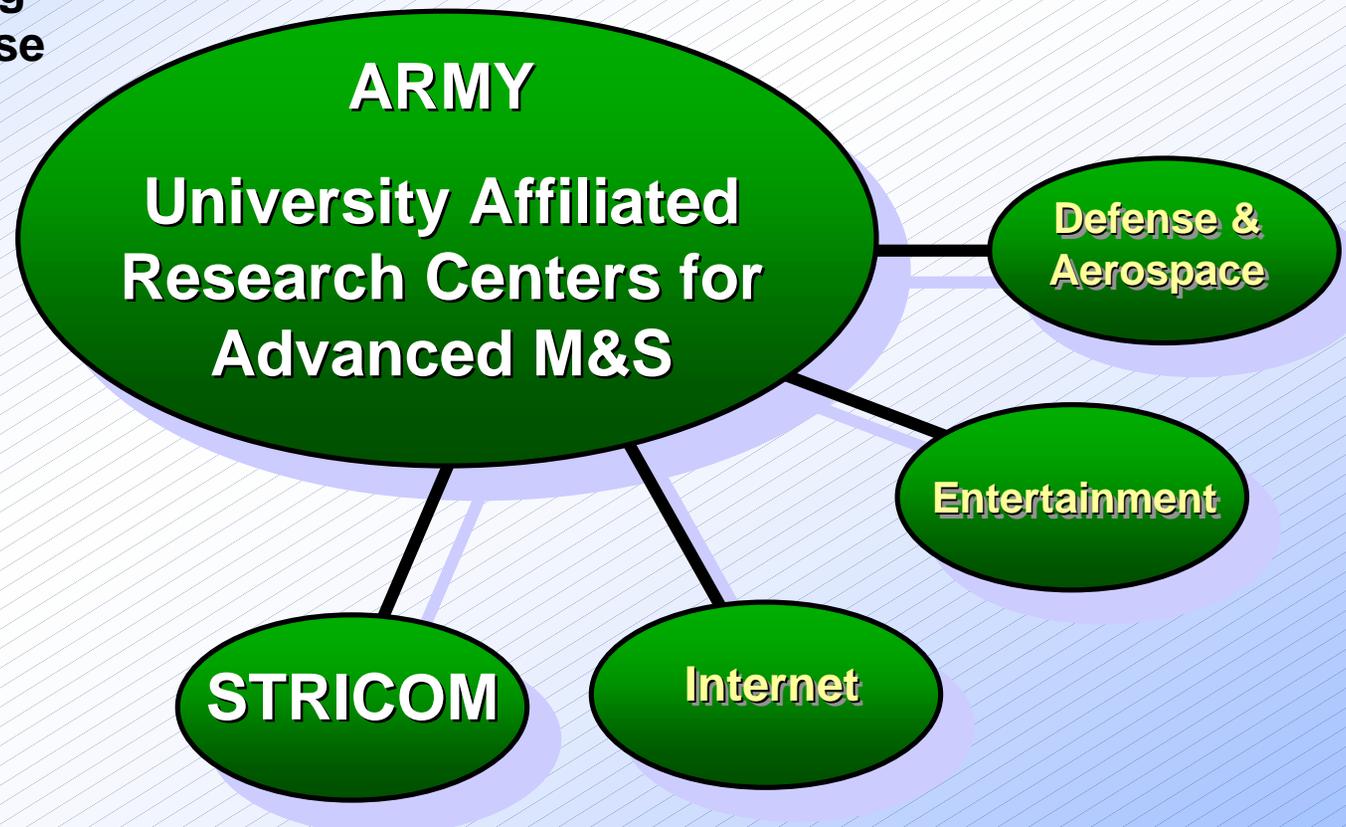
- Gaming
- Movies
- Entertainment



# University Affiliated Research Center for Advanced Modeling & Simulation

**Project Objective:** To create the world's best virtual environment research, education, and technology for Simulation and Modeling for Acquisition, Requirements, and Training (SMART) through partnership with the entertainment industry and academia

- Our vision is to bring together the expertise of Universities, the Internet and Entertainment, Army and the Defense Industries, toward a common focus on the virtual environment for Simulation and Modeling for Acquisition, Requirements and Training.





# STRICOM's Face to the Army - Army Wide Presence

*Providing the means to do:*  
*- Individual, Crew and Collective Training*  
*- At every Post, Camp and Station*

## R & D

- Database Management
- Distributed Component Technology
- Display Technology
- 3D Graphic & Sound
- Intelligent Simulations
- Micro-Nan Technologies
- Network Technologies
- Sensor Processing
- Synthetic Natural Environment
- Tracking Technologies
- Voice Interpolates



## Live

- Combat Training Center Program
- Multiple Integrated Laser Engagement System (MILES)
- JRTC - MOUT - IS  
Joint Readiness Training Center - Military Operations in Urbanized Terrain -Instrumentation System
- OPFOR Surrogate Vehicle



## Virtual

- Close Combat Tactical Trainer
- Tank Driver Trainer
- Precision Gunnery Trainer
- Conduct of Fire Trainer (COFT)
- Engagement Skills Trainer



## Constructive

- Brigade/Battalion Battle Simulation (BBS)
- CORPS Battle Simulation (CBS)
- Janus
- WARSIM (Future)



## Sustainment

- Virtual Logistics MSC
- Buyers of Performance Based Life Cycle Contact
- Small Footprint
- No IMMC
- NO LLSS
- NO Depots
- Umbrella Contracts





# Bosnia Support

**MISSION:** Repair currently contracted systems in country and triage others before evacuation to Germany (AAI/ESI)

## Systems Supported:

- Conduct of Fire Trainer (COFT)
- Advanced Gunnery Training System (AGTS)
- Videodisk Gunnery System (VGS)
- Multiple Integrated Laser Ensemble (MILES)
- Engagement Skills Trainer
- Shoot Don't Shoot

### *Life Cycle Contractors Support*

- 6 Technicians
  - McGovern
  - Demi
  - Dobel
  - Eagle Base



### *Life Cycle Contractor Support*

- 2 Technicians
  - Able Sentry



# *What is the Fixed Tactical Internet?*

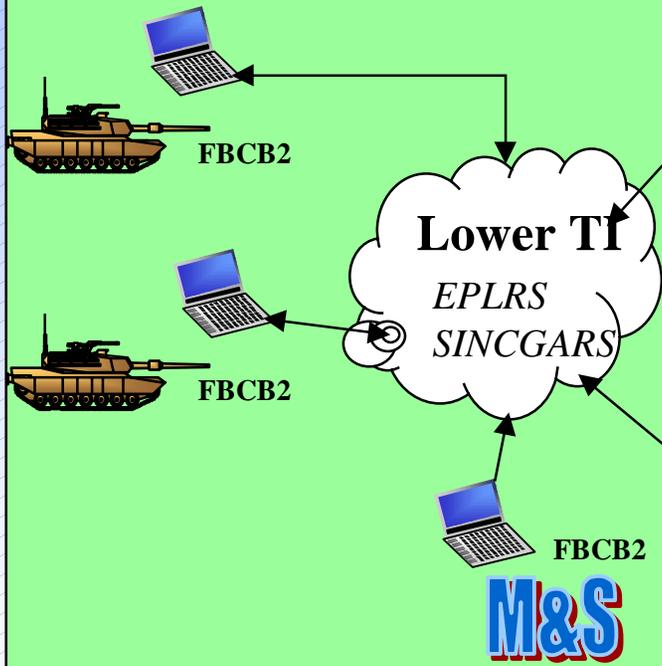
- **In the Near Term...**
  - **A Infrastructure “testbed” which enables digital communications across the Army’s Tactical Internet, meeting three primary objectives**
    - **Alternative to deploying Signal assets (EPLRS PLT) to support digital communications (Testing, Training, Experimentation, Fielding check-out)**
    - **Linkage to inject Simulation into Tactical C4I environment**
    - **Integral to future TSPs as a “Cross-Domain” Digital Training Enabler**
- **In the Far Term...**
  - **Becomes an Integral component of the Digitized Installation Infrastructure, enabling Digital Homestation Training Opportunities**
- **Key Points**
  - **As Materiel Developer, STRICOM acting as System Integrator**
  - **Experimenting with and integrating products from across the Army**
  - **Supporting digital system Integration, Testing, and Training opportunities**
  - **DI-FTI Coordination matrix includes 52 organizations around the Army**



# Digitized Installation Fixed Tactical Internet

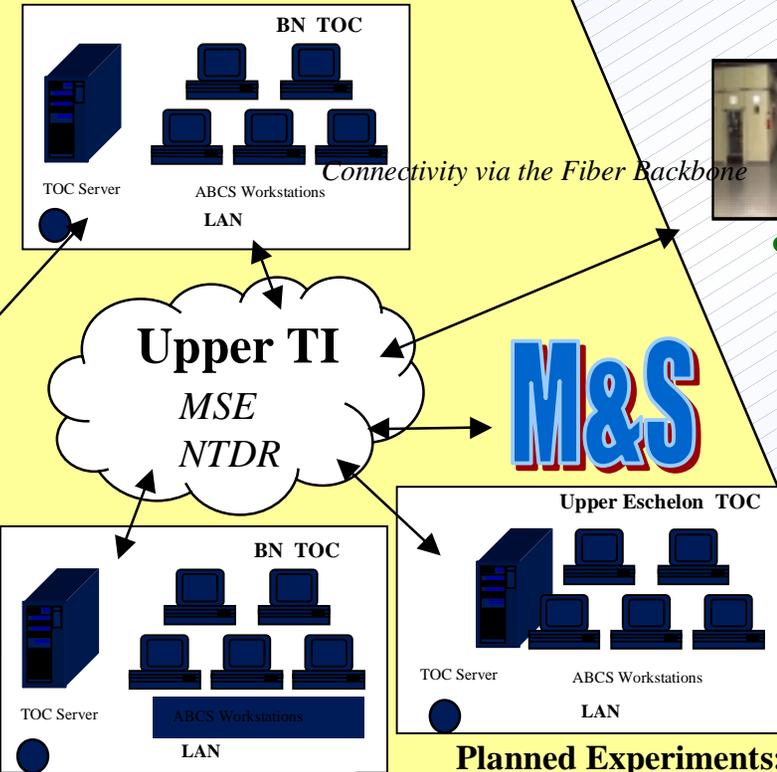
## Phase I Experiment - 20 Nov 1998

*Fixed Tactical Internet supporting FBCB2 users without mandatory Signal Corps support.*



- STRICOM Objectives:**
- Fixed EPLRS Network
  - Insert M&S into LTI
  - Approach FTI as Training Enabler
- ModSAF 4.0  
SATIDS Interface

## Phase II Experiments - FY99



- Must Deliver:**
- Permanent L-FTI Capability
  - Tailored User Guide (NET)
  - Warfighter TSP for FTI
  - Final Report w/ Analysis
  - Logistics Support for 2 Years
- Planned Experiments:**
- AE6 Participation
  - DMPR Integration
  - Upper Tactical Internet
  - TSP linkage w/ TREDs/DiSECT
  - Jamming (GPS & RF)
  - AAR Systems

## Phase III - Integrate with Post Infrastructure under HITS





# Partnership for Peace

**Supporting International Affairs**  
**By Supporting the Regional CINC's**



## Summaries

- Support to 36 countries
- 135 Foreign Military Sales Cases
- 4 Data Exchange Agreements
- \$500M delivered

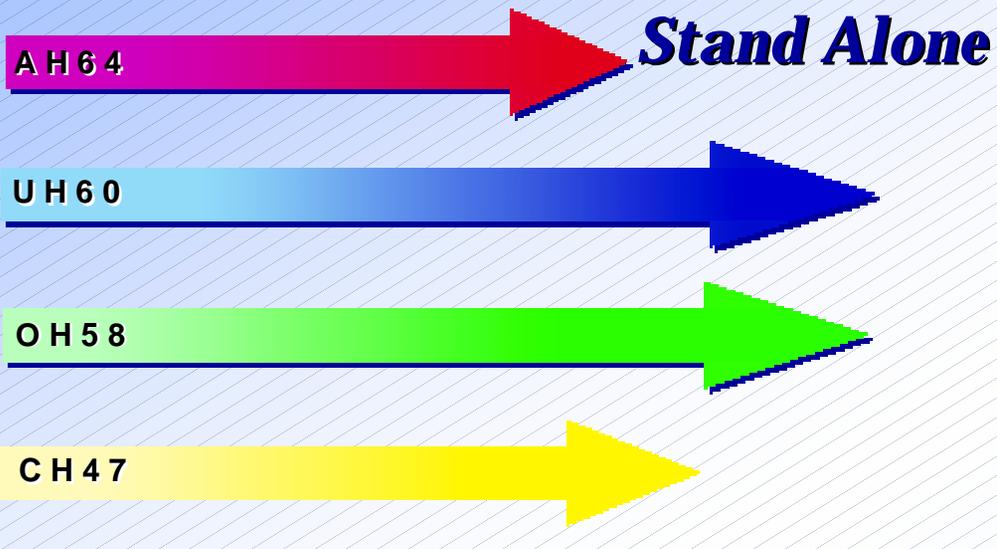
## Examples

- Czech Republic SIM Center/MILES
- Mexico Flight SIM (Drug Interdiction)
- Korean Battle Command Training Program (BCTP)
- UK CATT
- German GUPPIS/WARSIM
- Saudi M1/M2/LAV Training Devices
- Joint Simulation Support

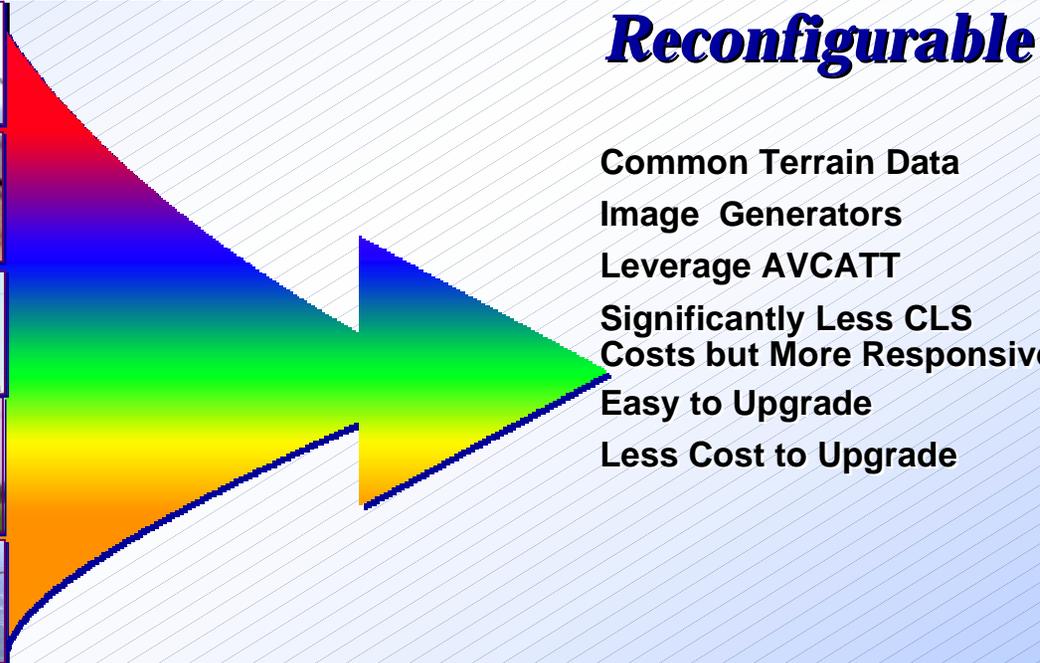


# Aviation Training

**OLD**



**NEW**



**Achieve Collective,  
Combined Arms  
and Joint Training**



# Interservice/Industry Training Simulation and Education Conference (I/ITSEC)



## Synthetic Solutions for the 21st Century

- Over 11,000 Participants
- Military Keynote - *General Abrams*
- Over 250 Exhibitors
- 170 Papers Presented
- Army “Raised the Bar”
  - Abstracts Received/Accepted 339/251
  - Papers Received/Accepted 202/170
- Target Audience
  - Combat Developers
  - Materiel Developers
  - Training Developers
  - Testers
  - Analyzers
  - Trainers



**More than Merely  
The M&S Community**



# Political Activities



## **Congressional Displays -**

- May 99 - "Training Support for the Digitized Force" Display for the House sponsored by Rep McCollum (R-FL)
- Oct 99 - "Training Enablers to Support the Digitized Force" Display for the Senate sponsored by Sen Sessions (R-AL) & Sen Hutchison (R-TX)



## **State/National Visits -**

- Feb 99 - Meeting w/Gov Jeb Bush
- Apr 99 - Invitation from Rep C. Weldon (R-PA) to speak at Technology Trends 2000
- May 99 - Courtesy Calls w/Sen Mack (R-FL); Rep McCollum (R-FL); Rep Hefley (R-CO); John Barnes, PSM, SASC; Dan Cox, PSM, SASC; Trish Ryan, PSM, HAC
- Oct 99 - Courtesy Call w/Sen Sessions (R-AL)



## **Congressional Delegation/Staff Delegation Visits -**

- Oct 98 - John Barnes, PSM, SASC, Dan Cox, PSM, SASC, Roger Smith, PSM, HASC
- Feb 99 - Rep D. Weldon (R-FL)
- Feb 99 - Scott Plecs, MLA, Rep Bartlett (R-MD); Rob Smith, MLA, Rep Hefley (R-CO); Dan Gans, LD, Rep Riley (R-AL)
- Sep 99 - Bob Lockwood, Sr. Counsel, Sen Hatch (R-UT)
- Nov 99 - Arch Galloway, MLA, Sen Sessions (R-AL)
- Dec 99 - Jenn Sikora, LD, Rep McCollum (R-FL); J.P. Delmore, LA, Rep Canady (R-FL)



## **State/National Correspondence -**

- Jan 99 - Congratulatory Notes to newly elected Florida delegation.
- Mar 99 - Thank you note to Gov Bush
- Apr 99 - Invitations to the House Display
- May 99 - Thank you note to Rep C. Weldon
- Aug 99 - Thank you letters to all House Display attendees
- Sep 99 - Invitations to the Senate Display
- Dec 99 - Thank you letters to all Senate Display attendees



# STRICOM Advisory Groups

*Assess how well STRICOM is achieving their mission within the Army and provides guidance on the future strategic direction for STRICOM.*



## Senior Leader Advisory Board (SLAB)

GEN(R) Richardson (TRADOC)  
GEN(R) Ross (AMC)  
GEN(R) Saint (CINCEUR)  
LTG(R) Carter (AAN)  
LTG(R) Hite (SARD)  
LTG(R) Thomas (AMC)  
MG(R) Jones (  
MG(R) Putman (PERSCOM/Industry)  
MG(R) Stroud (NG)  
MG(R) Baratz (AR)  
VADM(R) Bien (Navy)  
Mr. Gil Decker (SARD, Industry)

21 Jan 00



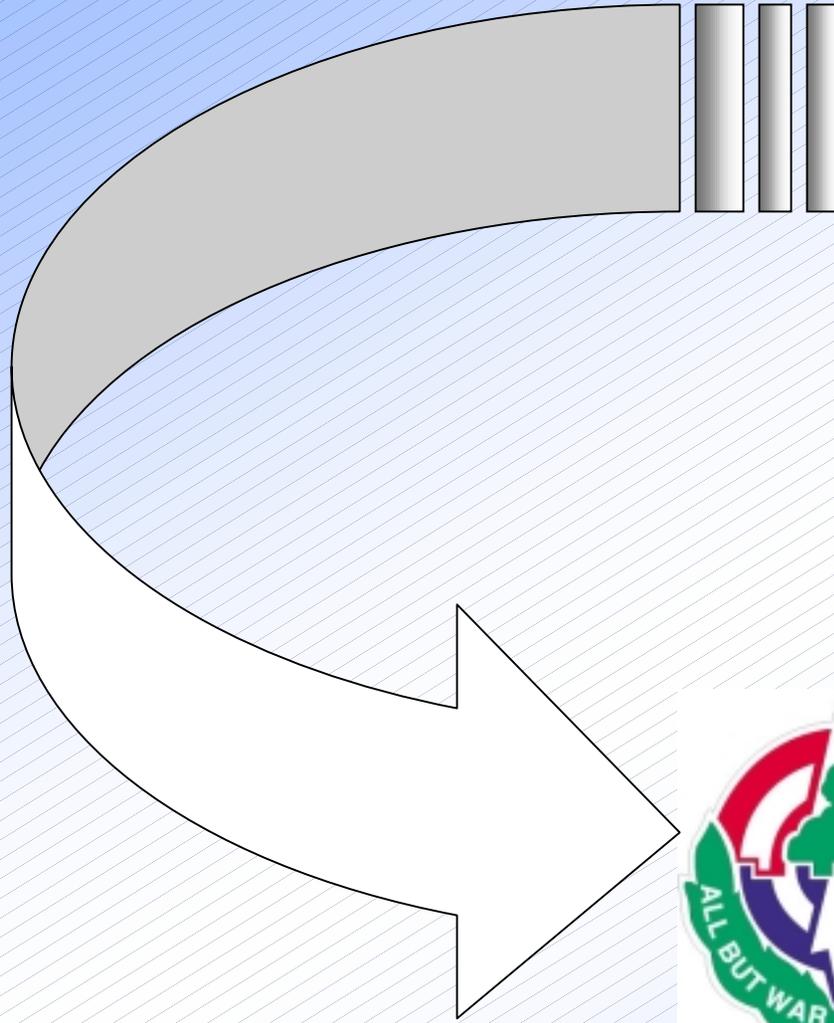
## Board of Directors (BOD)

MG Cosumano (ADCSOPS-FD)  
MG Madora (PAED)  
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MG Gatanas (ATEC)  
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11 Jan 00



# *My Vision*



***STRICOM...  
On Point for the Army  
in Modeling & Simulation...  
providing training systems  
& support services for our  
soldiers, any place,  
any time, across the full  
spectrum of operations***

