Army Comparative Testing Programs: Foreign Comparative Testing (FCT) & Defense Acquisition Challenge (DAC)

Presented by:

AL TRAWINSKI

3IA Directorate
US Army RDECOM
Fort Belvoir, VA

Quote

"International Materiel Cooperation is NOT pushing papers; it's buying and selling each others' stuff; politicians understand THAT!"

Anon

Army FCT/DAC Vision

Provide the Best Soldiers in the World with the Best Equipment in the World.

Army FCT/DAC Mission

Test and Evaluation
of
Non-Developmental Items
that
Demonstrate Potential
to
Satisfy U.S. Army Requirements
and
will then be Procured

FCT/DAC History

- 1980 - 89: The Foreign Weapons Evaluation (FWE) Program
- 1986 - 89: The NATO Comparative Testing (NCT) “Nunn Amendment” Program
- 1990 - 2003: The Foreign Comparative Testing (FCT) Program
- 2003 – Present: FCT and Defense Acquisition Challenge (DAC) Programs

FCT/DAC AUTHORITY AND POLICY

TITLE 10
U.S. CODE
SEC. 2350A

DoDD
5000.1
12 May 03
The Defense
Acquisition
System

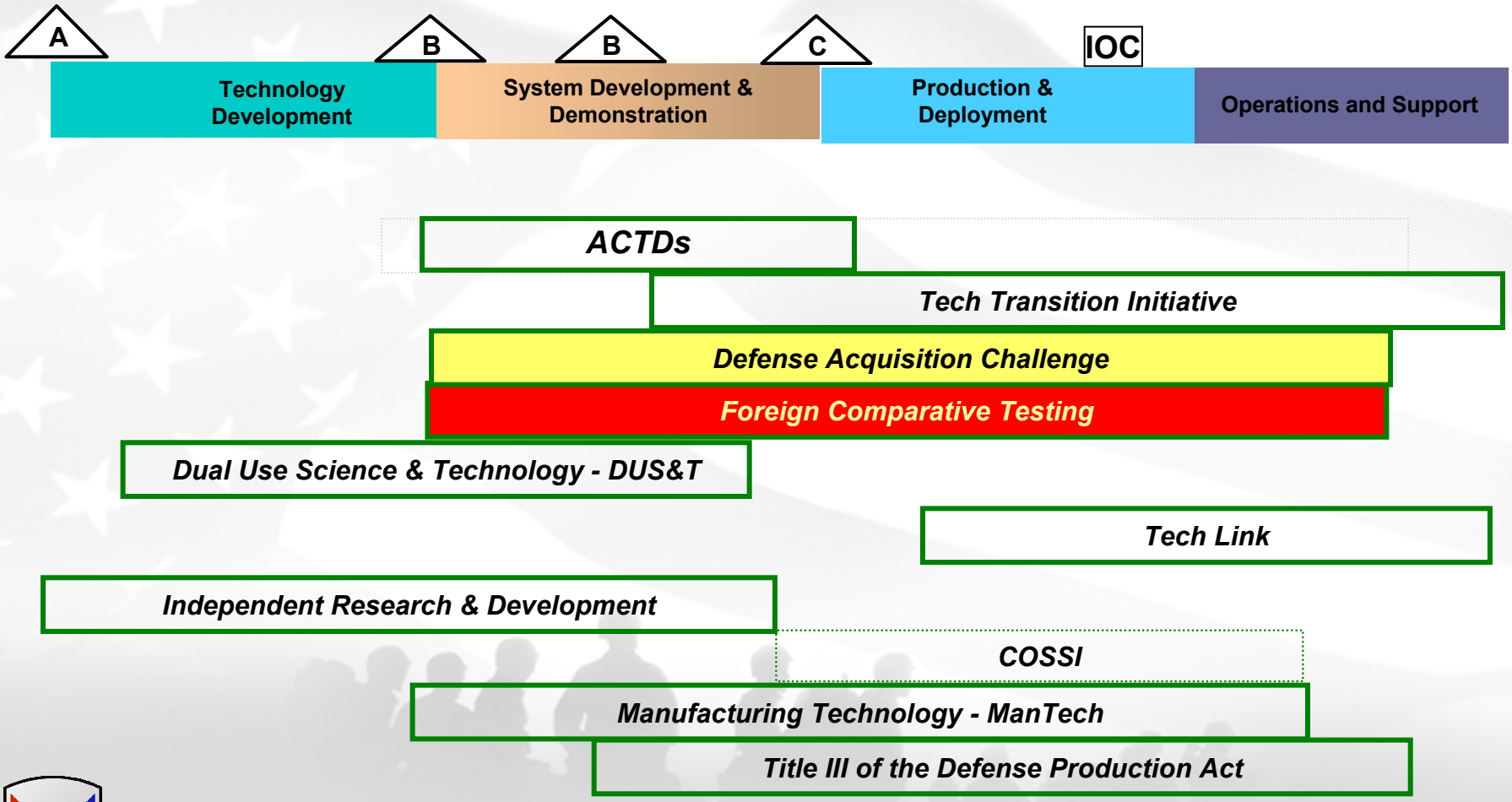
- Congressionally Mandated Programs
- Consistent With DoD Acquisition Policy
- Key Objectives
  - Improve Warfighting Capability (Better)
  - Accelerate Fielding (Faster)
  - Save Taxpayer Funds (Cheaper)

Acquisition Hierarchy

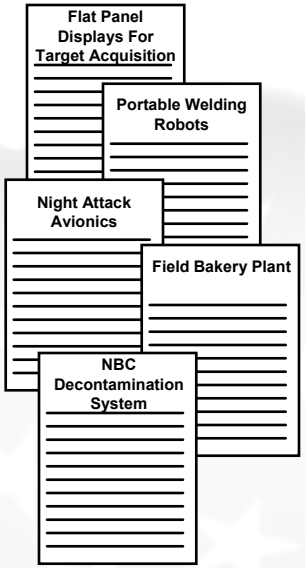
- 1. The procurement or modification of commercially available products, services and technologies from domestic or international sources, or the development of dual-use technologies
- 2. The additional production or modification of previously developed US and/or Allied military systems or equipment
- 3. A cooperative development program with one or more Allied nations
- 4. A new Joint DoD Component or Government Agency development program
- 5. A new DoD Component unique development program

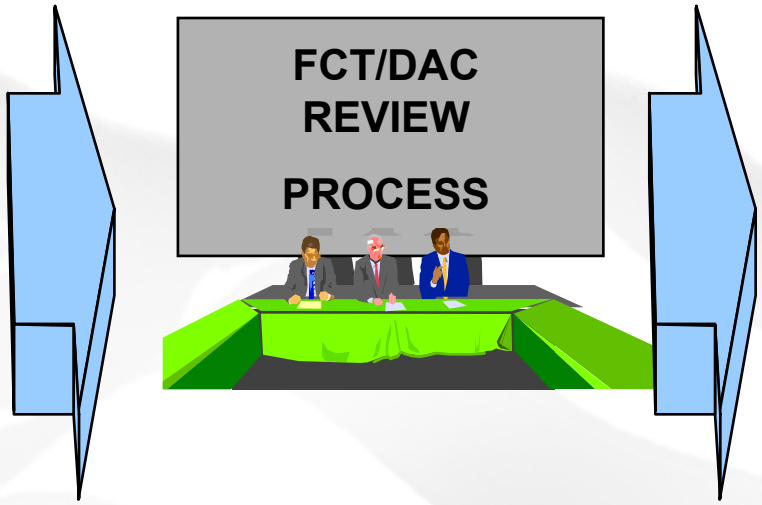
DoDD 5000.1, 12 May 03

FCT /DAC in the Acquisition Cycle



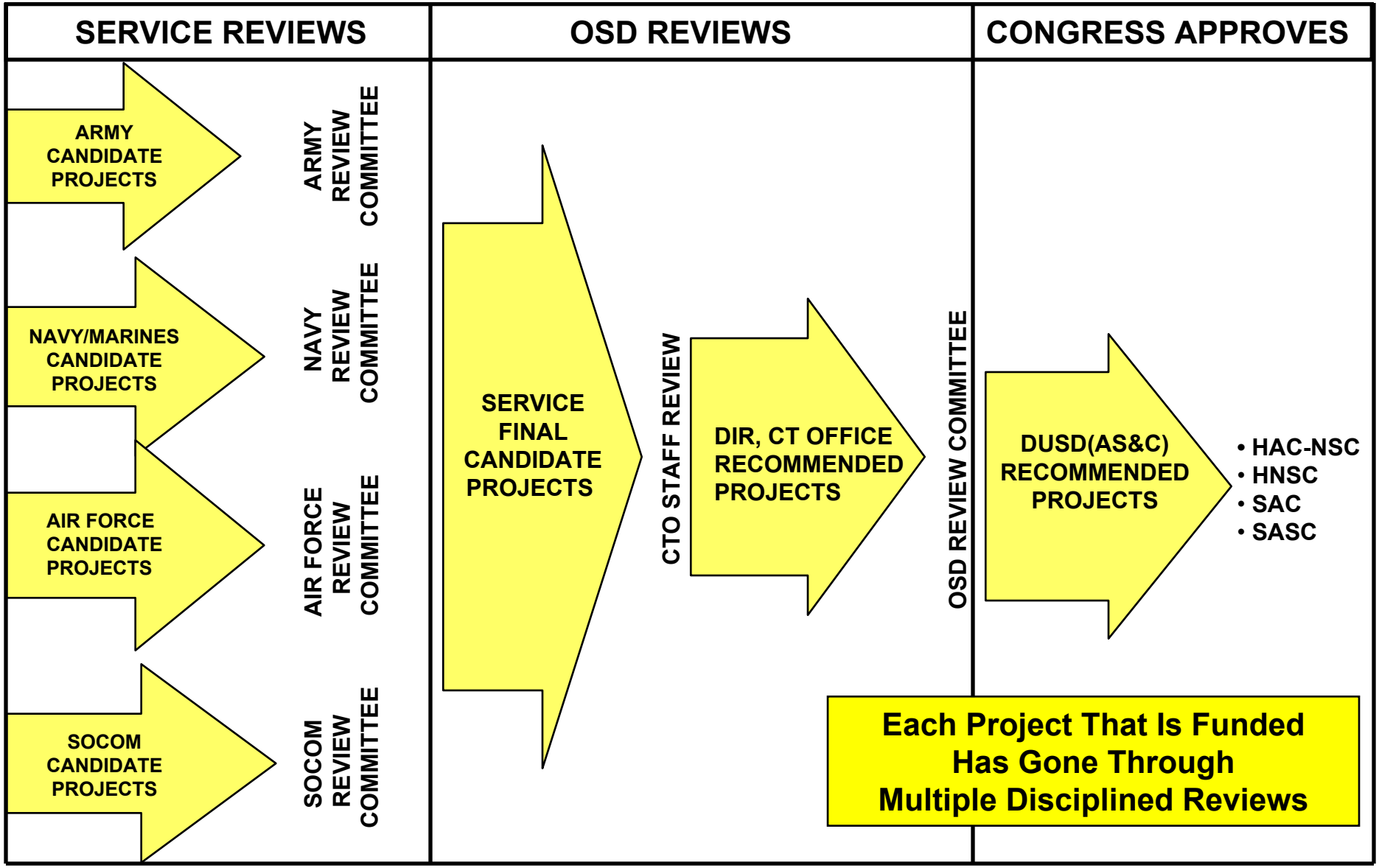
ANNUAL FCT/DAC CYCLE





PROJECTS APPROVED AND FUNDED; CALL FOR NEW PROPOSALS	DRAFT PROPOSALS DUE TO ARMY	FINAL PROPOSALS TO DUE TO ARMY	FINAL PROPOSALS DUE TO OSD	OSD REVIEW & SELECTION
OCT	FEB	APR	JUN	AUG

PROJECT SELECTION PROCESS



EVALUATION CRITERIA

Small Unit Support Vehicle (Sweden)

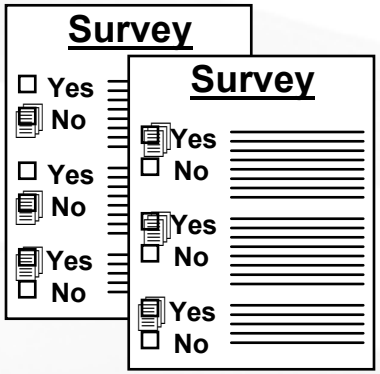
USER ADVOCACY

SATISFY FORMAL REQUIREMENTS

ORD / MNS

Versatile Exercise Mine System (UK)

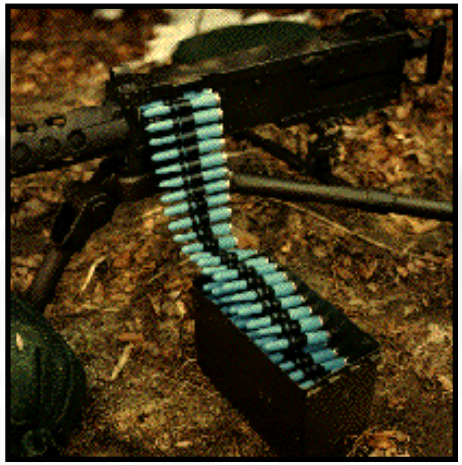
SERVICE PROCUREMENT DOLLARS IDENTIFIED



MARKET SURVEY OF U.S. AND FOREIGN SOURCES

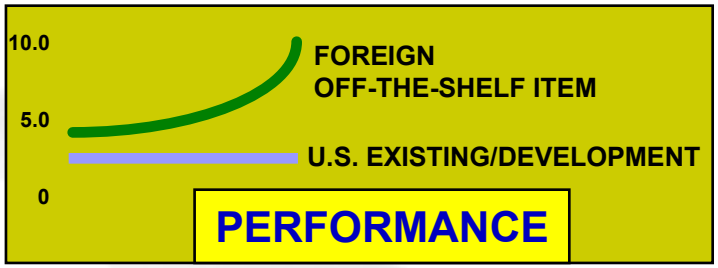
EVALUATION CRITERIA (CON)

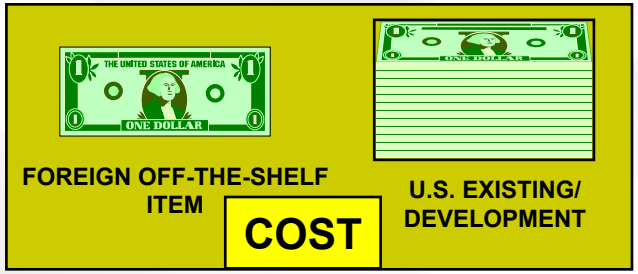
ITEM IN PRODUCTION



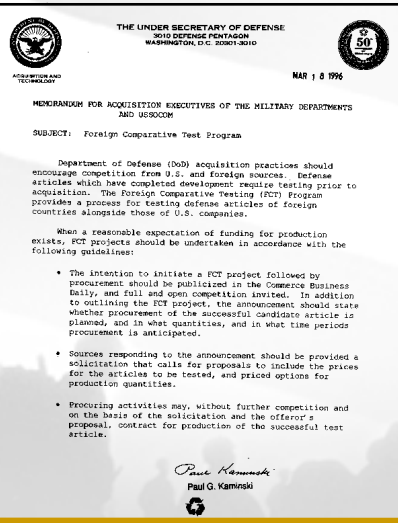
.50 CAL Plastic Ammunition (Germany)

IDENTIFIABLE ADVANTAGE





IN USE BY FOREIGN COUNTRY



THE UNDER SECRETARY OF DEFENSE
3010 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-3010

ACQUISITION AND TECHNOLOGY

MAR 1 8 1996

MEMORANDUM FOR ACQUISITION EXECUTIVES OF THE MILITARY DEPARTMENTS AND USSOCOM

SUBJECT: Foreign Comparative Test Program

Department of Defense (DoD) acquisition practices should encourage competition from U.S. and foreign sources. Defense articles which have completed development require testing prior to acquisition. The Foreign Comparative Testing (FCT) Program provides a process for testing defense articles of foreign countries alongside those of U.S. companies.

When a reasonable expectation of funding for production exists, FCT projects should be undertaken in accordance with the following guidelines:

- The intention to initiate a FCT project followed by procurement should be publicized in the Commerce Business Daily, and full and open competition invited. In addition to outlining the FCT project, the announcement should state whether procurement of the successful candidate article is planned, and in what quantities, and in what time periods procurement is anticipated.
- Sources responding to the announcement should be provided a solicitation that calls for proposals to include the prices for the articles to be tested, and priced options for production quantities.
- Procuring activities may, without further competition and on the basis of the solicitation and the offeror's proposal, contract for production of the successful test article.

Paul Kaminski

Paul G. Kaminski

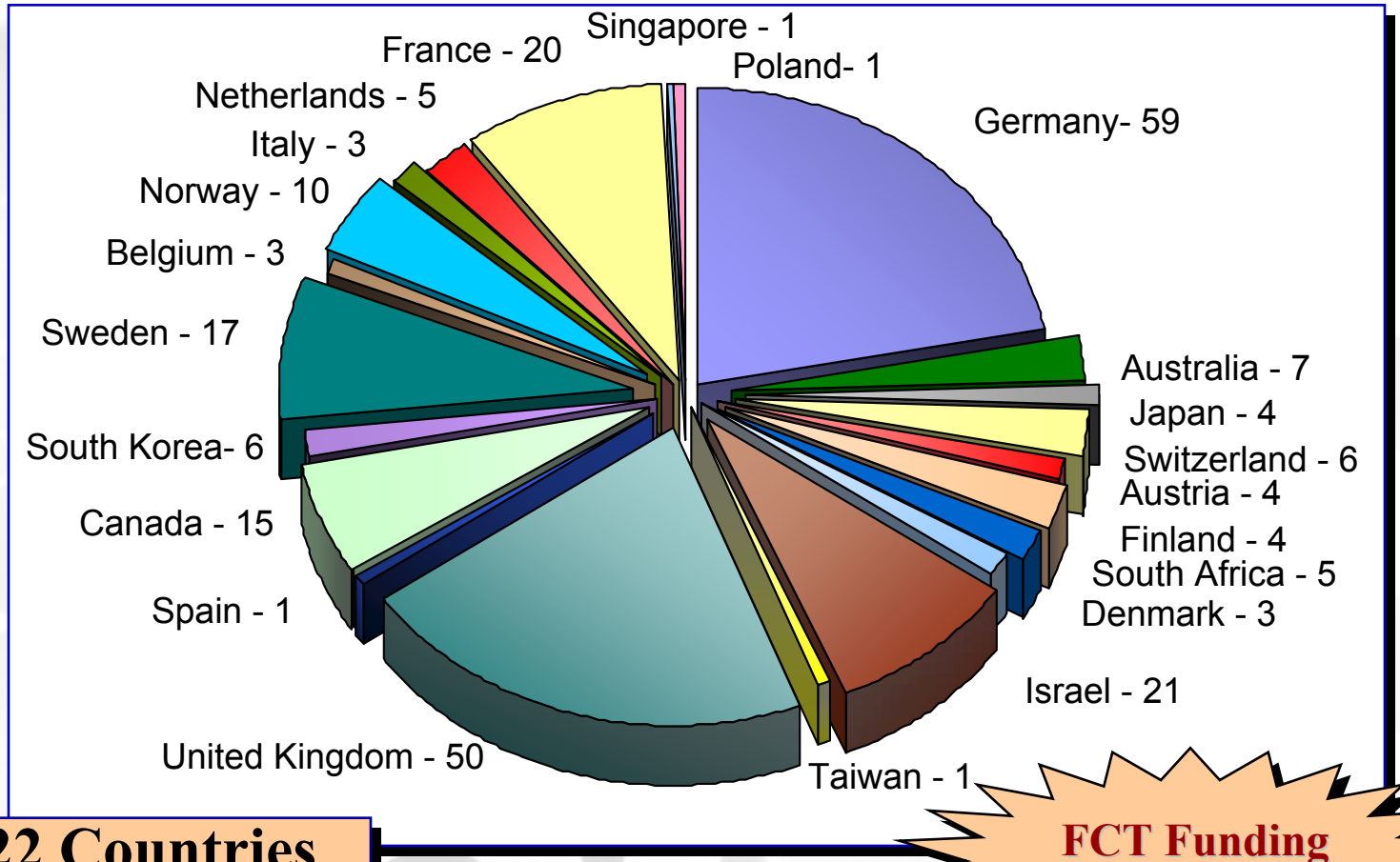
ACQN STRATEGY/ CONTRACT STRATEGY

- REASONABLE EXPECTATION
- CBD ANNOUNCEMENT
- PRICED OPTIONS
- WITHOUT FURTHER COMPETITION
- CRITICAL EVALUATION CRITERIA FOR FCT FUNDING

FCT/DAC MANAGEMENT OVERSIGHT

- QUARTERLY PROGRESS REPORT
- UPDATED PROJECT CHART
- MID-YEAR OSD/SERVICE REVIEW
- ANNUAL REPORT TO CONGRESS
- CLOSE-OUT REPORT
- PROCUREMENT UPDATES

International Participation in Army FCT (Thru FY 04)

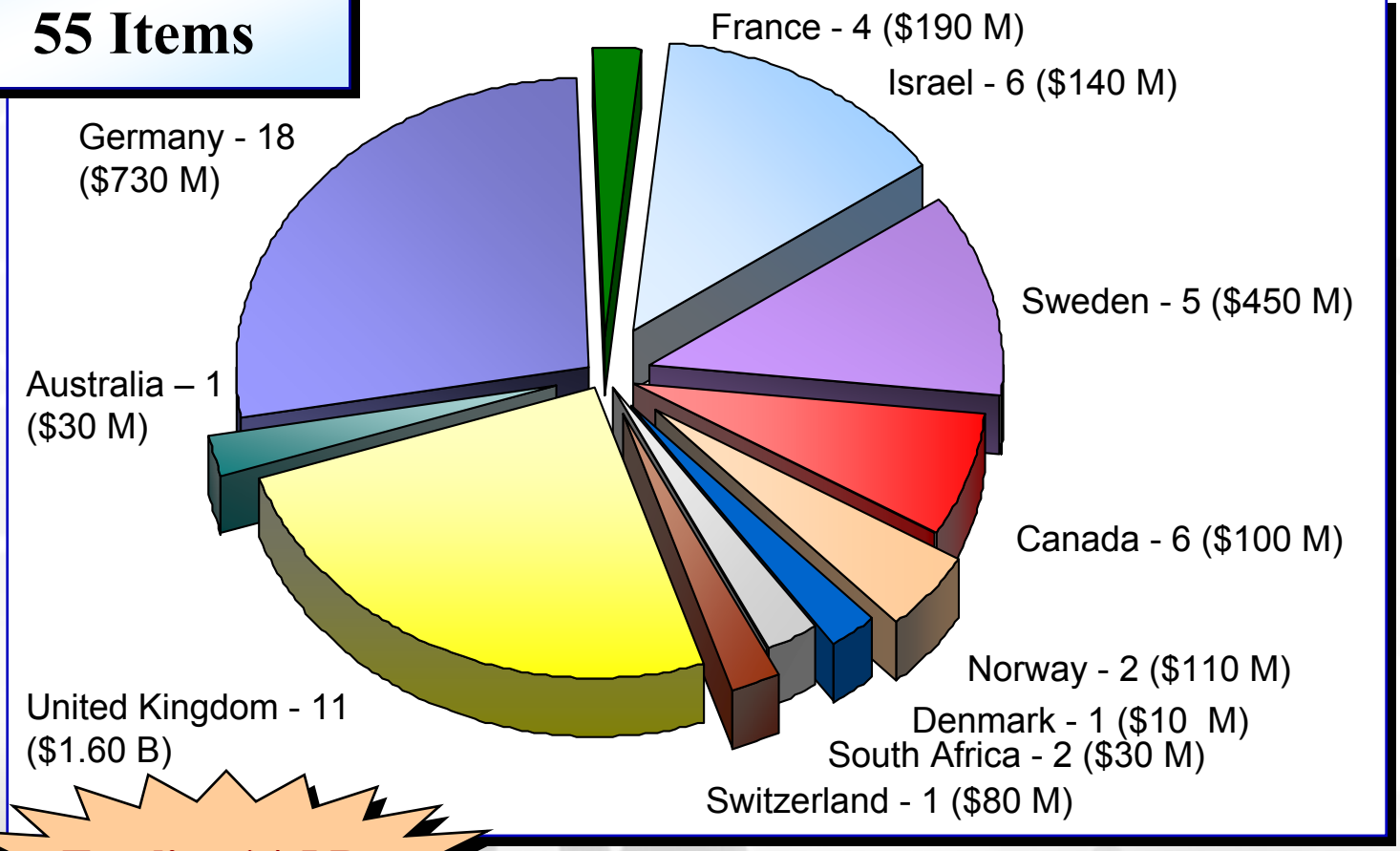


22 Countries
182 Projects
24 Years

FCT Funding Received - $185 M

Army FCTs Resulting in Fielding (Thru FY04)

11 Countries
55 Items



Totaling $4.5 B in Procurement

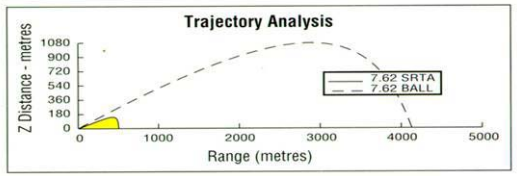
FCT is Successful!

- Increased combat capabilities:
  - Army: $4.5 B in procurements from $185 M OSD FCT funds received (55 items from 11 countries)
  - Increased Allied Rationalization, Standardization, Interoperability/Multinational Force Compatibility
- RDT&E cost avoidance:
  - $2.5 B in Army RDT&E costs avoided for $185 M
  - Average reduction in fielding time = 5.0 years
  - Eliminates duplication of RDT&E (182 projects with 22 countries)
- Procurement and O&S costs savings:
  - Increased Competition, Decreased Costs
  - Industry Teaming/Licensing; US Production=US Jobs
  - Offset credit

2 Success Stories

M119A1

7.62 Training Ammo

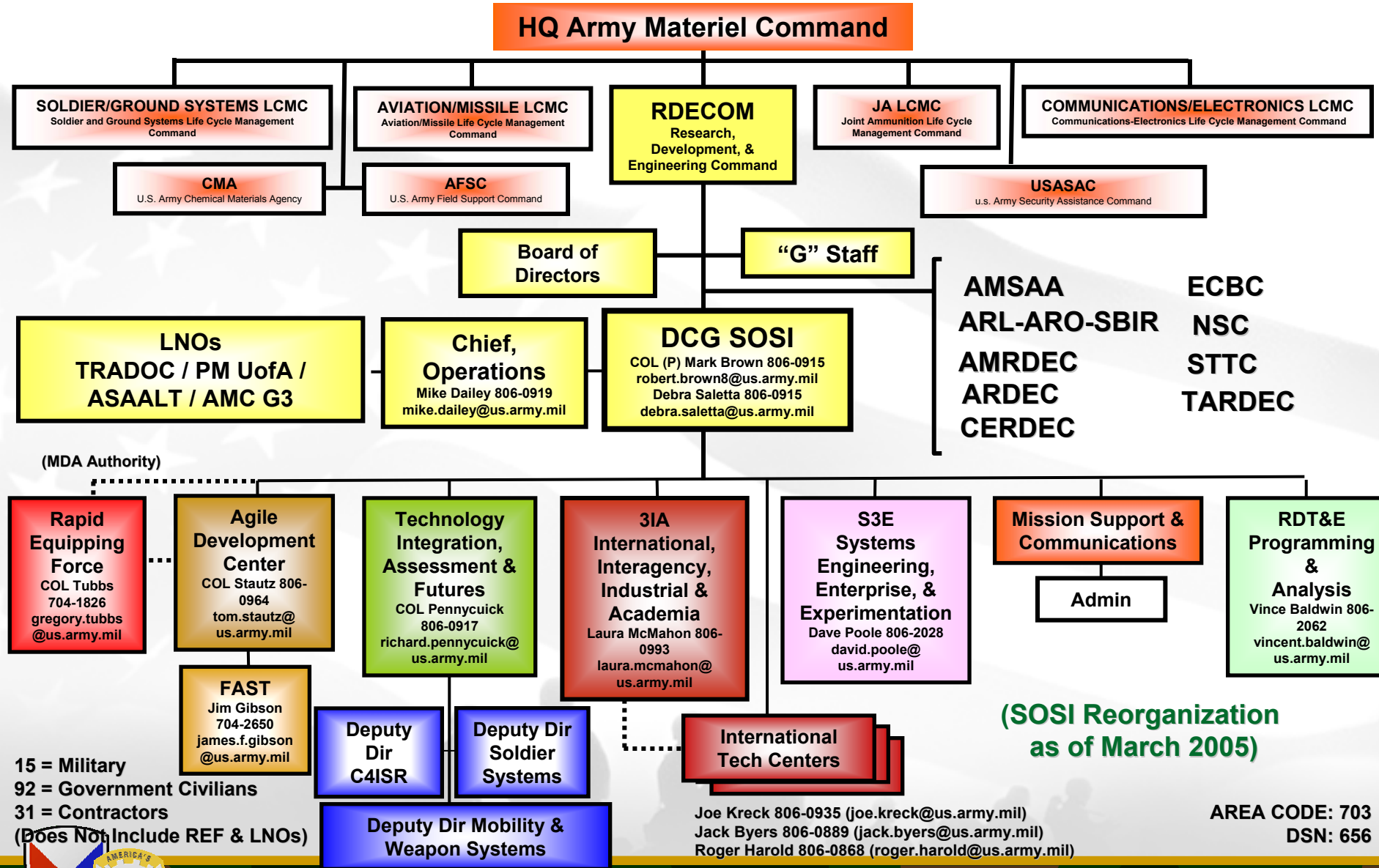


FCT/DAC POCs

- OSD: Dan Cundiff, 703-602-3740
- Army: Al Trawinski, 703-806-0999
- Navy: Mike Locke, 202-764-2448
- USAF: Fred Howell, 703-588-8945
- USMC: Shawn Prablek, 703-432-4296
- SOCOM: Bill Burke, 813-828-9426

- www.acq.osd.mil/cto
- www.fedbizopps.gov
- https://bids.acqcenter.com.cto

Organization



(SOSI Reorganization as of March 2005)

15 = Military
92 = Government Civilians
31 = Contractors
(Does Not Include REF & LNOs)

Joe Kreck 806-0935 (joe.kreck@us.army.mil)
Jack Byers 806-0889 (jack.byers@us.army.mil)
Roger Harold 806-0868 (roger.harold@us.army.mil)

AREA CODE: 703
DSN: 656

105mm Preformed Fragments

Technology

Improved lethality and increased range, due to unique design, over current U.S. 105mm ammo.

Objectives

Evaluate for procurement. Predict will save $30M in RDT&E and $96M in Procurement costs. 4 – 6 years accelerated fielding.

Participants

- U.S. Army PM-Combat Ammunition Systems, Picatinny Arsenal, NJ
- GDOTS/Denel-Naschem, South Africa

Comments

FCT Funding: $0.965M (FY03) + $1.0M (FY04)

Status: Letter contract awarded to vendor. Initial TWIG conducted. USMC interest – "observer".

Procurement: Replacement projectiles for M107, M795, M1, M913 buys starting FY04.

POC: Al Trawinski, 703-617-4712

155mm Ammunition

Technology

Greatly increased range, due to unique design, over current U.S. 155mm ammo.

Objectives

Evaluate for procurement. Predict will save $14M in RDT&E and $58M in Procurement costs. 4 – 6 years accelerated fielding.

Participants

- U.S. Army PM-Combat Ammunition Systems, Picatinny Arsenal, NJ
- GDOTS/Denel-Naschem, South Africa

Comments

FCT Funding: $1.7M (FY03) + $1.0M (FY04)

Status: Letter contract awarded to vendor. Initial TWIG conducted. USN and USMC added to IPT.

Procurement: Replacement projectiles for M107, M795, M1, M913 buys starting FY04.

POC: Al Trawinski, 703-617-4712

FCT Individual Serviceman NL System

Beretta

Technologies

- *FN303 Less Lethal Launcher (FN)*

✓ Compressed air powered launcher designed to fire 0.68 caliber 8.5 g less-than-lethal projectiles

✓ Allows for greater engagement range, higher accuracy, and higher rates of fire than any currently fielded NL capability

- *Constant Kinetic Effect Weapon (Beretta)*

✓ Uses terminal constant kinetic energy to ensure the non-lethal dose at the required range

✓ Use of a variable gas outlet to regulate muzzle velocity

Capabilities

- *FN303*

✓ 1-100 m effective engagement range; 4 types of projectile: Impact, Washable, Indelible, and OC

✓ 110 shot capacity air bottle, 15 round magazines

- *Beretta*

✓ 10-70 meters Effective Engagement Range

✓ Constant Kinetic Energy Across Range; Max Impact Energy, 120 J

✓ Accurate to 1 m at 70 m range

Comments

FCT Funding: $376K (FY05) + $613K (FY06)

Procurement: Minimum of 252 systems projected to be procured from FY05-07. Potential for up to 6624 systems.

Cost Avoidance: R&D $2.1M; Procurement N/A; O&M TBD

CELLULOID MORTAR INCREMENT CONTAINER

System Description

FOREIGN COMPARATIVE TESTING (FCT) PROGRAM OBJECTIVE

Qualify celluloid mortar increment containers (MICs) for U.S. 60mm and 120mm propulsion systems.

BACKGROUND

MICs are utilized to contain/protect propellant and therefore are a key component of High Explosive, Smoke, Illuminating and Practice propulsion charge systems.

KAGO is the world leader in celluloid material production and has the facilities capable of manufacturing 60mm and 120mm MICs.

Benefits

Use of celluloid MICs has significant potential to *reduce cost* and *improve the robustness* of the MIC for semi and auto-loading capabilities, i.e., *Future Combat System (FCS) application.*

Celluloid MICs provide *100% waterproofing and air tightness.*

Technical Approach

Procure test quantities and conduct a test and evaluation program comparing celluloid MIC performance with current production MICs. The following tests will be conducted at YPG:

Velocity & Pressure
Adverse Condition
Hot & Dry Cycle
Cold Soak
Sequential Rough Handling
Residue & Debris
Secured Cargo Vibration
Rate of Fire

Funding

Total OSD FCT Funding:

FY04: $.755M
FY05: $.470M

Participants:

- EWETD,AETC
  Picatinny Arsenal, NJ
- Kaufman and Gottwald Ges.m.b.h. (KAGO)
  Vienna, Austria
- U.S. Army Yuma PG, AZ

POC: Mr. Al Trawinski, 703-806-0999

120MM MORTAR PROPELLANT

System Description

FOREIGN COMPARATIVE TESTING (FCT) PROGRAM OBJECTIVE

Qualify an extruded-impregnated (EI) propellant for the U.S. 120mm propulsion system.

BACKGROUND

Nitrochemie Wimmis AG, Switzerland has state-of-the-art manufacturing facilities and equipment capable of producing 120MM EI propellant.

Benefits

Supports Future Combat Support (FCS) System – Lower temperature coefficient that has the potential to *increase range for 120MM mortar cartridges by up to 15%*

Elimination of diphenylamine (DPA) as a stabilizer to comply with:

Executive Order 128526 – Eliminate or reduce the unnecessary acquisition of products containing extremely hazardous substances or toxic materials

Lower flame temperature resulting in a reduction of blast over pressure and an *increase in rate of fire*

Increased propellant stability / *3 times longer shelf life*

Technical Approach

Procure test quantities and conduct a test and evaluation program comparing 120mm Mortar EI propellant performance with current production M47 propellant.

The following tests will be conducted at YPG:

Velocity & Pressure
Blast Overpressure/Flash
Adverse Condition
Hot & Dry Cycle
Cold Soak
Sequential Rough Handling
Secured Cargo Vibration
Propellant Volume
Rate of Fire

Comments

Total OSD FCT Funding:

FY04: $.575M
FY05: $.500M

Participants:

- EWETD,AETC
  Picatinny Arsenal, NJ
- Rheinmetall Nitrochemie Wimmis AG
  Switzerland
- U.S. Army Yuma PG, AZ

POC: Mr. Al Trawinski, 703-806-0999

Anti-Personnel Cartridge
Foreign Comparative Test

Technology

- Multiple Projectiles fired from Muzzle Launched Ordnance attached to M16/M4 rifles/carbines.

Objectives

- Qualify for the production of a 40mm Anti-Personnel Cartridge.

Participants

- U.S. Army / U.S. SOCOM
- PM-SW / PM-MAS
- Israeli Military Industries

Schedule

Contract Award	4Q/FY06
Technical Test	3Q/FY07
Milestone C	1Q/FY08

Status* - Pending Program Approval

Funding

Funding ($K):	FY06	FY07	FY08	Total
CTO:	625	1800	400	2825

Benefits

RDT&E Cost Savings: Cost avoidance of $2M

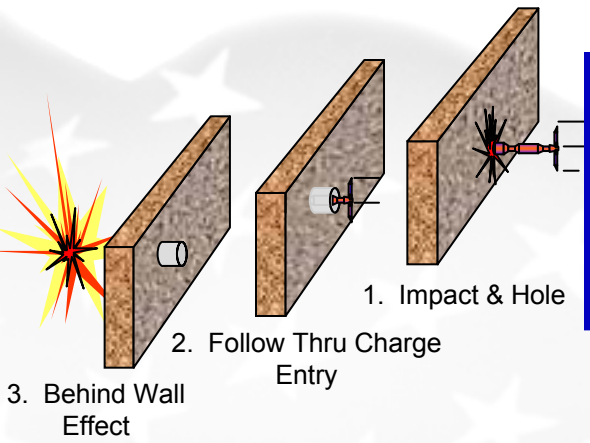
Procurement Potential: High – Substitution into current procurement lines for 40mm ammunition will occur pending Type Classification.

Implementation Plan/Other Benefits: Improved anti-personnel capability against multiple targets at close range

POC: Al Trawinski, 703-806-0999

AT4CS Enhanced Blast Tandem Weapon

Foreign Comparative Test Program (FY06)



AT4 CS EBTW

Vender: **Saab Bofors Sweden**

Technology

Through-the-Wall Enhanced Blast AT4CS Weapon System for Enhanced MOUT

Objectives

Conduct safety, performance, environmental and operational test and evaluation required to make an acquisition decision.

Type of FCT: Qualification Test to Procure

Participants

Service Lead: US Army
Other Service Interest: USSOCOM
Program Manager: PM CLOSE COMBAT SYSTEMS
Vendor: Saab, Sweden

Schedule

Test Articles Received: Mar 07 (12 MAC)
DT/OT Testing: Mar 07 – Dec 07 (10 Mo. Duration)
IPR: Feb 08

Status*

Proposal

Funding

Funding($K):	FY06	FY07	FY08	Total
CTO	$1.38M	$2.215M	$0.285M	$3.88M
Sponsor	0	0	0	0

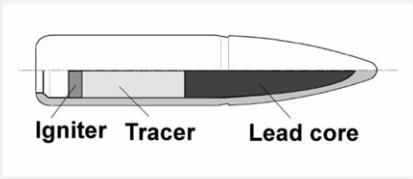
RDT&E Cost Savings:		$20M
Procurement Cost Savings:	$105M	
Fielding Reduction:		5 Years
Procurement Potential:		5,000/yr

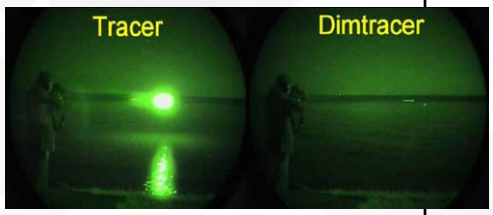
POC: Al Trawinski / Army FCT Office
PM: Gary Barber, PMCCS (973) 724-6778

5.56mm Tracer Cartridge Foreign Comparative Test

Dim Tracer Projectile

5.56 mm dim tracer round in accordance with requirements in NATO STANAG 4172





Technology

- Pyrotechnic technology for use in tracer cartridges to control fire direction with Day/Night Vision Devices.

Objectives

Qualify foreign vendor(s) for the production of a 5.56mm IR Dim Tracer Cartridge.

Qualify a 2nd source for the current tracer cartridge to enhance the U.S. industrial production base capacity.

Participants

- U.S. Army / U.S. SOCOM
- PM-SW / PM-MAS
- NAMMO, Norway
- IMI, Israel
- SNC TEC, Canada

Schedule

Contract Award	2Q/FY06
Technical Test	1Q/FY07
Milestone C	4Q/FY07

Status* - Pending Program Approval

Funding

Funding ($K):	FY06	FY07	Total
CTO:	745	1,275	2020
Sponsor	500	500	1000

Benefits

RDT&E Cost Savings: Cost avoidance of $2M

Procurement Potential: High – Substitution into current procurement lines for linked 5.56mm ammunition will occur pending Type Classification.

POC: Al Trawinski, 703-806-0999

Family of Extended Range Ammunition (FERA)

FCT

Technology

- Cargo carrier with rocket motor for increased range
- Variety of payloads are planned (HE, Illumination, Non-Lethal, and Training)

Objectives

- Combination of increased range & lethality allows for greater organic responsiveness
- STO III.H.12 completed in 2001 and transitions to PM-CAS in FY07 for SDD

Participants

RDECOM/ARDEC AETC, MS & TD
PM Mortars / PM CAS
Picatinny, NJ 07806-5000
IMI, Israel
TDA/GD, France/US

Schedule

STO III.H.12 completed in 2001 and transitions to PM Mortars / PM-CAS in FY07 for SDD

Milestone B	4Q/FY07
Milestone C	1Q/FY10

Funding

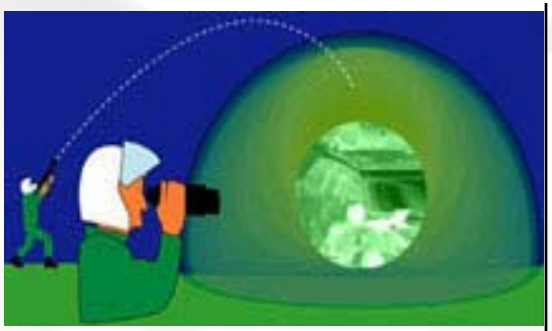
Funding ($K):	FY06	FY07	F08	Total
CTO:	$2M	$6M	$4M	$12M

Benefits

RDT&E Cost Savings: $58M
O&S Cost Savings:
Procurement Cost Savings:
Fielding Reduction:
Procurement Potential: Replacement of current ammo
Implementation Plan/Other Benefits:

POC: Al Trawinski (703)806-0999
PM: Peter J. Burke (973)724-5802

40mm IR Illumination Cartridge Foreign Comparative Test



Technology

- IR Pyrotechnic technology for use in 40mm Illumination to enhance Day/Night Vision Devices.

Objectives

- Qualify foreign vendor(s) for the production of a 40mm Infra-red Illumination Cartridge.

Participants

- U.S. Army / U.S. SOCOM
- PM-SW / PM-MAS
- Nico Pyrotechnic, Germany

Schedule

Contract Award	4Q/FY06
Technical Test	3Q/FY07
Milestone C	1Q/FY08

Status* - Pending Program Approval

Funding

Funding ($K):	FY06	FY07	FY08	Total
CTO:	790	955	420	2165
Sponsor	790	955	420	2165

Benefits

RDT&E Cost Savings: Cost avoidance of $2.2M

Procurement Potential: High – Substitution into current procurement lines for 40mm ammunition will occur pending Type Classification.

Implementation Plan/Other Benefits: Improved capability on battlefield to detect and recognize targets.

POC: Al Trawinski, 703-806-0999

Non-Lethal Bursting Hand Grenade

Technology

To provide a Hand Thrown Munition to the US Army Military Police School (USAMPS) and the Non-Lethal Capability Set (NLCS).

Objectives

To Type Classify and field a NLBHG which will provide the soldier an alternative force option to lethal force in civil unrest and crowd control situations.

Participants

<Sponsoring Service>
U.S. Army (USAMPS)
<Sponsoring Program Office>
U.S. Army (OPMCCS)
<Company, Country/State>
France

Schedule

Contract Award: 2Q/FY08
Milestone OT: 3Q/FY09
Milestone C: 1Q/FY10

Status*

Unfunded

Funding

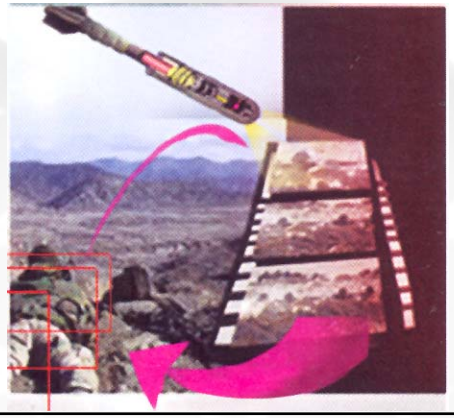
Funding ($K):	FY05	FY06	Total
CTO:	$225	$1600	$1825

Benefits

RDT&E Cost Savings: TBD
O&S Cost Savings: TBD
Procurement Cost Savings: TBD
Fielding Reduction: TBD
Procurement Potential: TBD
Implementation Plan/Other Benefits: Operational Capability

POC: Al Trawinski / DSN 767-0999
PM: Mr. Yusif H. Yafai / DSN 880-6794

Reconnaissance Cartridge
DACP



Technology

- IR camera technology for use in Rifle Grenade or 40mm Cartridge to provide real time battlefield situational awareness

Objectives

- Qualify for the production of a Reconnaissance Rifle Grenade and a 40mm Cartridge.

Participants

- U.S. Army
- PM-SW / PM-MAS
- IMI, Israel
- MEI, USA / FL

Schedule

Contract Award	4Q/FY06
Technical Test	3Q/FY08
Milestone C	3Q/FY08

Status* - Pending Program Approval

Funding

Funding ($K):	FY06	FY07	FY08	Total
CTO:	1575	2250	600	4425
Sponsor				

Benefits

RDT&E Cost Savings: Cost avoidance of $4.4M

Procurement Potential: High – Substitution into current procurement lines for 40mm ammunition will occur pending Type Classification.

Implementation Plan/Other Benefits: Improved capability on battlefield to detect and recognize targets.

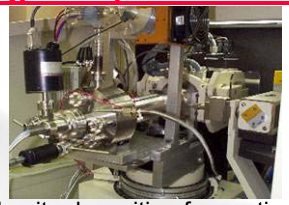
POC: Al Trawinski, 703-806-0999

BAA Number: USA-SNOTE-040213-003
Application: Coatings for All Caliber Tri-Service Applications
Proposal Title: Superior Surface Treatment Techniques for Adherent Bore Coatings

Dr. Sabrina Lee
2/17/ 2004

Surface-Plasma Engineering to Improve Adhesions

Hollow cathode discharge in hydrogen and argon for cleaning



In-situ deposition for coatings diagnostics during growth

Firing and Erosion Simulator

FCS-MCS

Operational Capability:

-This proposal applies innovative surface and plasma engineering technology to gun bore surface and interface to improve adhesion of bore coating. New technology is applicable to coating process for all caliber tri-service gun systems.

-Improve gun manufacturing processing by replacing concentrated acid pre-clean bath, use hollow cathode discharge and hydrogen plasma clean, surface and interface nitriding, and ion-assisted and in-situ physical vapor deposition technology.

-This project meets EPA mandates for environmental friendly wear and erosion resistant coatings, improves fatigue life and performance of future guns to deliver hot projectiles. Technology targets FCS 120mm smooth-bore and 155mm rifled-bore sections, applicable to NAVY Advanced Gun Systems.

Proposed Technical Approach: New Effort

Phase 1 (FY05): (Coupon sample demonstration)

- Improved electrochemical clean with new NaCl etc electrolytes.
- Hydrogen plasma cleaning and nitriding for enhanced adhesion.
- Ion-assisted cylindrical and in-situ magnetron deposition.
- Demonstrate superior adhesive coatings on gun steel coupons.

Phase 2 (FY06):(Bore section deposition)

- Optimize new surface clean, interface preparation, and coating deposition techniques.
- Demonstrate superior adhesive coatings on FCS 120mm smooth bore and 155mm rifled bore sections.
- Analytic testing, vented combustor firing tests.
- Technology transition to US Army Coating Program MTO-CMS, full scale FCS and Navy AGS gun systems.

Rough Cost and Schedule:

Phase 1 (FY05), Period of performance is 12 months, cost $390K
Phase 2 (FY06), Period of performance is 12 months, cost $390K
Total Period of Performance is 24 months, Total cost is 780K

Deliverables:

- Coated gun bore sections with superior adhesion and wear properties.
- Improved coatings deposition process, including pre-cleaning, surface and interface preparation and nitriding, and ion assisted deposition.
- Report summarizing accomplishments.

Investigator Information:

Dr. Sabrina Lee
US ARMY-RDECOM-ARDEC-Benet Labs, AMSRD-AAR-AEW
Watervliet, NY 12189-4050
518-266-5503, DSN 374-5503, sabrilee@pica.army.mil

BARREL ARMOR

DACP

Technology

TPL has demonstrated the ability to explosively bond refractory metals on the interior curved surfaces of medium and large caliber gun tubes. The resulting metallurgical bond can withstand the interior ballistic forces, and resist the harsh chemical and thermal environment generated by repeated, rapid cannon firing.

Objectives

Erosion resistant gun barrels that will extend barrel life 400%; bridges the war fighter gap and creates a life cycle savings due to logistics, enhanced survivability and greater lethality

Participants

United Defense, LP (UDLP)
NSWC Dahlgren
PEO IWS
ARDEC, Benet, ARL
SFAE-AMO-MAS

Schedule

25./30mm firing test	03Q05
Cost assessment report	03Q05
Manufacturing Process Report	03Q05
76mm firing test	04Q05

Funding

Funding ($K):	FY05	FY06	FY07	Total
CTO (mortars):	$478	$478	$0	$956
CTO (tank):	$400	$1,000	$600	$2,000

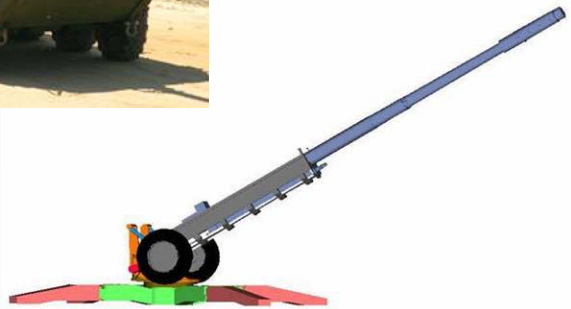
•Mortar funding can slide to FY06 and FY07 with the same total if required by funding cycles.

•Tank funding can be $1MM in FY06 and $1MM in FY07 if required by funding cycles.

•TPL is prepared to start work in 03Q05 on both programs.

POC: Jeff Pfohl, Ph.D.
505-342-4468, jpfohl@tplinc.com

Enhanced Forcible Entry Cannon
DACP



Technology

The Project is to use the GDLS/DENEL 105mmm Self-propelled Howitzer (SPH) as a technology carrier to demonstrate the ability for a candidate EFEC howitzer to fire both US semi-fixed ammunition, as well as, the ACAAP (DENEL) projectiles and the modular charge system. As the armament will be the same for the EFEC and the LAV III demonstrator, the use of the SPH will allow the US Army to not only demonstrate the ability of the cannon to fire both types of ammunition, but will also allow the Army to characterize the entire System

Objective

The objective is to determine whether the cannon system can fire both US semi-fixed ammunition and DENEL ACAAP ammunition with modular charges and can be configured for either in a short (1 ½ hour) time span. While proving the concept, it will also allow complete characterization of the system to include projectile, propellant and breech/barrel, as well as, safety certification and partial qualification of the system.. Furthermore, it will allow soldiers to handle the system and make any recommendations for improvement they want to see on the towed demonstrator which will be substituted for the SPH when it is completed in FY06.

Participants

US Army
PM CAS
GDLS, USA
DENEL, South Africa

Schedule

Characterization/Safety Cert	4thQtr/FY06
Qualification	4thQTR/FY07
OT	4thQTR/FY08
Milestone C	1thQTR/09

Status*

Developmental

Funding

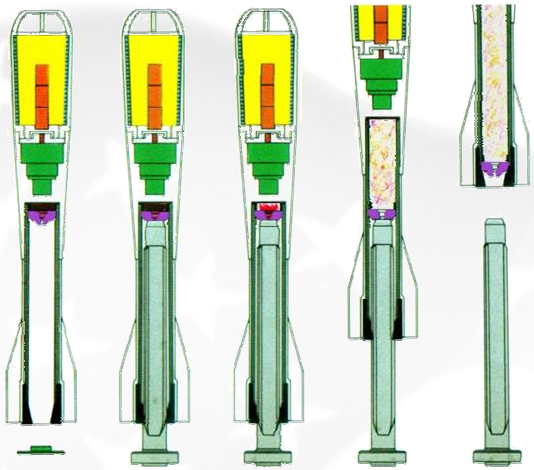
Funding ($K):	FY06	FY07	Total
CTO:	$1.8M	$1.4M	$3.2M
Sponsor	UNK	UNK	UNK

Benefits

RDT&E Cost Savings: >$220M
O&S Cost Savings:>$100-300M
Procurement Cost Savings:>$250M
Procurement Potential: 735 Total $>$1B
Implementation Plan/Other Benefits: SDD for EFEC could be much shorter and in the hands of the troops sooner.

POC: Al Trawinski, ,(703) 806-0999
PM: Jim Vickrey, 596-825-5412

Extremely Low Signature Projectile Launch System
DACP



Technology

The Extremely Low Signature Projectile Launch System is a stealthy, indirect fire weapon. It incorporates a device that can propel lethal, less than lethal and UAV payloads without any detectable heat or light and almost no sound. It has individual soldier and vehicle or ground multiple launch options.

Objectives

Demonstrate system capability and UAV Integration.

Participants

Vendor: United Defense ASD, Minneapolis MN

Schedule

Ph 0: Kick Off	Q1/FY06
Ph I: Demonstration	Q2/FY06
Ph II UAV Integration Demo	Q2/FY07

Funding Requested

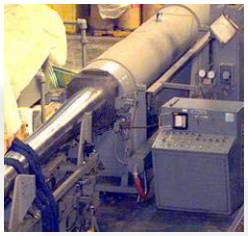
Funding ($K):	<FY06>	<FY07>	Total
CTO:	<$>	<$>	<$>
Sponsor	<$>	<$>	<$>

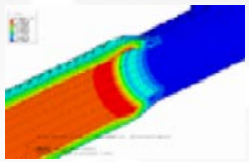
Benefits

Capability Improvement Using a US manufactured version of a system fielded by every arm of the French military.

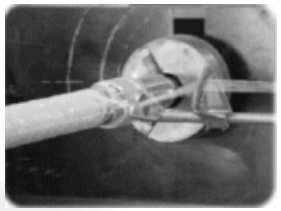
United Defense POC: Patrick Schmidt 763-572-4959

Optimize Lightweight Cannon Production via In-Bore Stress Monitoring of Composite Overwrap and Double Autofrettage Processes <DACP>

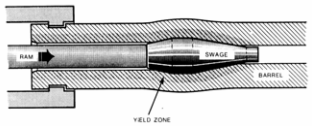




Nondestructive in-bore stress monitoring and FEM for weight reduction in large caliber cannons



Composite overwrap by filament winding for lighter cannons



Improved double swage autofrettage for lighter cannons

Technology

Innovative cannon manufacture processes, composite overwrap and double swage autofrettage, reduce cannon weight while maintain strength and fatigue life. Nondestructive stress technology maps stress distributions at ID and OD. Combined with finite element modeling, the technology can optimize these processes for transition of prototype to production. Technology is applicable to large caliber FCS (NLOS/BLOS and NLOS-C) and Legacy 120mm and 155mm cannons.

Objectives

To test-evaluate-fabricate an in-bore stress analyzer to optimize large caliber cannon production; To optimize innovative composite overwrap and dual swage processes for cannon weight reduction. Successful completion of the project delivers an in-bore stress analyzer and optimized process parameters with safe maximum pressure and life.

Participants

<US Army>
<US Army-RDECOM-ARDEC-Benét Labs>
<Proto Manufacturing, Old Castle, ON, Canada-Ypsilanti, MI>
<Technology for Energy Corp, Knoxville, TN>

Schedule

<Test-evaluate prototype in-bore stress analyzers	1Q-2Q/06>
<Design-modify-fabricate in-bore stress analyzer	2Q/06-2Q/07>
<Establish stress quality procedures for gun tubes	2Q-4Q/07>
<Testing double swage autofrettage process	2Q/06-2Q/07>
<Testing composite overwrap process	2Q/06-2Q/07>
<FEM of elastic-plastic deformation in processes	3Q/06-3Q/07>
<Operational testing for double swage	1Q-3Q/07>
<Optimize manufacture process parameters	4Q/07>
<Documentation and Technology Deployment	4Q/07>

Status*

Funding

Funding ($K):	<FY06>	<FY07>	Total
CTO:	<$600k>	<$600k>	<$1,200k>
Sponsor	<$100k>	<$100k>	<$200k>

Benefits

RDT&E Cost Savings:
O&S Cost Savings: <based on FCS-Abrams production schedule>
Total Benefits = $22M (10 yrs), $34M (20 yrs)
BIR = 12.4 (10 yrs), 14.7 (20 yrs); ROI = 57.0%
Procurement Cost Savings: <N/A>
Fielding Reduction: <N/A>
Procurement Potential: <N/A>
Implementation Plan/Other Benefits: <PM-Lethality shall implement in-bore stress technique and optimized manufacturing processes for cannon weight reduction, increased strength and life savings>

POC: <Dr. Sabrina Lee, Mr. D. Crayon/ 518-266-5503>
PM: <Mr. Pete DeMasi/ 973-724-4938, DSN 880-4938>

Supercapacitor for High "G" Gun Launch Munitions

DACP

Technology

Supercapacitor based power source design.
High G packaging design for artillery gun applications.

Objectives

Eliminate a one shot battery lithium reserve cell power source.
Qualify an unlimited usage and operating life power source.
Demonstrate 20 year storage life survivability of power source.
Demonstrate artillery gun survivability; up thru projectile level.
Modify Excalibur design for new power source integration.
Eliminate the need to expend an expensive projectile within days after initializing it with GPS target coordinates.
Provide the Warfighter with a more versatile projectile at a significant cost savings and increased reliability.

Participants

US Army ARDEC, Picatinny
Project Manager for Excalibur
Raytheon Missile Systems, AZ, USA
Maxwell Technologies, CA, USA

Funding

Funding ($K):	06	07	Total
CTO:	354	245	599
Sponsor:	12	6	18

Schedule

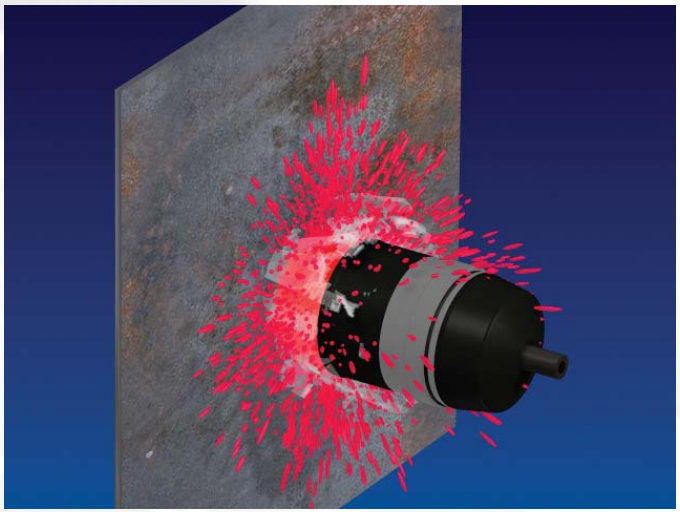
Performance Validation Completed	2Q/FY06
Design Integration / Performance Verification	4Q/FY06
Subsystem Rail Gun Survivability Demo	2Q/FY07
System Live Gun Firing Qualification Testing	3Q/FY07
Milestone C (per Excalibur Schedule)	1Q/FY08

Benefits

RDT&E Cost Savings: $1.4M (Live gun testing cost avoidance.)
O&S Cost Savings: $1.1M ($36K X 30 fewer rounds discarded.)
Procurement Cost Savings: $5.4M ($179 ea X 30000)
Fielding Reduction: 30 Fewer Rounds @ $36K ea
Procurement Potential: $2.1M (30000 X $71.00 ea)
Other Benefits: Increased factory handling safety since supercapacitor power source approach eliminates battery primer.

POC: James Hahn / 973-724-2117
PM: Chris Grassano / 973-724-5246

SOCOM 40mm Tactical Marking & Day/Night Training Cartridges FCT Project



Technology

- Tac Marking: Provides Accurate IR “Gen 3” signal to mark targets at night, effective range of 200 meters
- Support Air-Ground Fire Coordination (especially in urban areas and MOUT) at night
- Training Round: Provides non dud-reducing day + night training cartridge allow operators to train with 40mm weapons at night – M781 PIP

Objectives

- Qualify a Joint tactical marking cartridge allowing SOF/Army forces to coordinate fires at night time
- Qualify a 40mm day and night training cartridge

Participants

- U.S. Special Operations Command
- U.S. Army PM Ammunition
- U.S. Army Special Operations Command
- U.S. Naval Special Warfare Command
- NSWC Dahlgren
- NICO Pyrotechnik (Germany)
- Flexi Solutions (New Zealand)

Comments

Funding ($M):

FY05	FY06	Total
.497	2.629	3.126

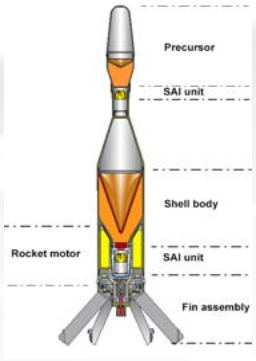
Schedule:

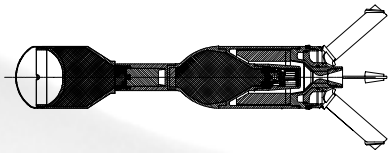
Technical Test	4QFY05
Operational Test	1QFY06
Milestone C	4QFY06

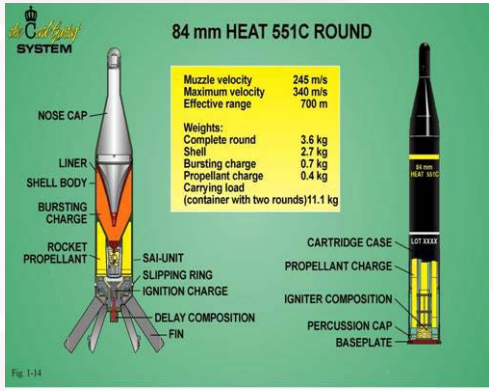
Procurement Potential: Initial $6.7M USSOCOM/US Army procurement. (additional USMC procurement anticipated)

POC: Mr Bill Burke, (813) 828-9426
PM: Mr Tracy White (540) 653-7920

SOCOM 84mm Multi-Target Warhead FCT Project







Technology

- Tandem warhead for 84mm weapon - MAAWS - multiple target capability
- Ability to penetrate 12” triple brick, 8” reinforced concrete and provide “kill behind wall ”capability in urban terrain

Objectives

- Integrate & evaluate existing components into MT warhead using HEAT751 as baseline
- Full SOF qualification of warhead

Participants

- U.S. Special Operations Command
- U.S. Naval Special Warfare Command
- U.S Army Special Operations Command
- U.S. Army ARDEC
- Saab Bofors Dynamics, Sweden
- Defense Threat Reduction Agency

Comments

Funding ($K):

FY05	FY06	FY07	Total
2,360	1,580	1,245	5,185

Schedule:

Technical Testing	4Q05
Operational Test	2Q07
Milestone C	3Q07

Procurement Potential: Initial $11M for 5,000 rounds with additional procurement in FY09-11.

POC: Bill Burke (813) 828-9426
PM: Bhuvanesh Thoguluva (973) 724-7876

SOCOM MAAWS Illumination Round Upgrade FCT Project

Saab Bofors Dynamics, Sweden

Technology

- 84mm illumination round compatible with Multi Role Anti Armor Anti Personnel Weapon System
- Qualify ammunition fuze meeting U.S. safety standards

Objectives

- Evaluate an 84mm improved illumination round

Status

- US Product Qualification Tests (PQT) nearing completion (both Army and Navy).
- Test streamlining has reduced test hardware requirements.
- Blast Overpressure testing has been completed.
- Anticipate full PQT completion by 2QFY05.

FUNDING

Funding ($K)	Prior	FY03	FY04	Total
CTO	1240	465	645	2350
Sponsor				

BENEFITS

RDT&E Cost Savings: $15M

O&S Cost Savings: $0.5M

Procurement Cost Savings: $5M

Procurement Potential: $5.2M in POM. Army adoption will increase POM FY06

Other Benefits: Increased combat effectiveness & survivability

POC: Mr Bill Burke, (813) 828-9426
PM: Mr Bhuvanesh Thoguluva, (973) 724-7876

SOCOM 40mm IR and Visual Parachute Flare FCT Proposal

Technology

- Provides IR Illumination of battle space and covert signaling.

Objectives

- Qualify an IR Flare and its visual variant for use by NAVSPECWARCOM, US Army Special Operations, and USMC.

Participants

- U.S. Special Operations Command
- Naval Surface Warfare Center Crane
- US Army Special Ops
- USMC
- Nico Pyrotechnik, Germany

Schedule

Technical Test	4QFY06
Operational Test	3QFY07
Milestone C	4QFY06

FUNDING

Funding ($K)	FY06	FY07	Total
CTO	300	1,500	1,800
Sponsor	0	0	0

BENEFITS

RDTE Cost Savings: $ TBD
O&S Cost Savings: $ TBD
Procurement Cost Savings: $ TBD
Fielding Reduction: TBD
Procurement Potential: TBD

POC: Mr Bill Burke, (813) 828-9426
PM: Mr Dennis Lambrecht, (812)854-5808

40mm LV HEDP PIP 05 Project

Project Description:

This joint USMC/USSOCOM FCT will evaluate the integration of improved propulsion system, propellant & Insensitive Munitions with a self destruct fuse into an improved low velocity 40mm HEDP cartridge for use in M79 and M203 Grenade Launchers..

Key Participants:

- Germany, Rhinemetall
- Canada, ARGES
- USMC Joint with USSOCOM
- USAF
- US Army

Technology:

Product Improvement Program to the existing 40mm HEDP ammunition.

Benefits to the Warfighter:

Provides the Warfighter with a more accurate and lethal HEDP cartridge for use against a broad spectrum of targets.

Schedule:(2005-2006)

- Contract Award: 3rd Qtr FY05
- WSERB Certification: 4th Qtr FY06
- Procurement Decision: 4th Qtr FY06

5.56mm SPECIAL EFFECTS SMALL ARMS MARKING SYSTEM 05 Project

Project Description

Evaluate the safety & integration suitability of 5.56mm linked low-velocity training munitions for the M249 Squad Automatic Weapon (SAW). .

Key Participants:

- Canada, Simunitions
- USMC
- MCWL

Technology:

- User installed weapons modification kit that allows the individual Marine to fire, at short range, low velocity marking ammunition, while precluding the weapon from firing live ammunition.

Benefits to the Warfighter:

- Provides rifle companies & platoons to integrate training of all small arms weapons (M16/M4, M9 pistol, .45cal pisto etc.)
- Capability to conduct pre-mission training in a more realistic manner

Funding Profile	FY03	FY04	Total
FCT ($M)	**.420**	**.330**	**.750**
Non-FCT Funding	**.150**	**.100**	**.250**

M16A2/M4 Training Bolt 05 Project

Technology

- Designed to prevent accidental chambering & firing of live rounds
- Low cost & SESAMS compatible
- Integration into TRNG w/o any modification

Objectives

- TRNG bolt will replace the current SESAMS upper receiver for the M15A2 & M4 Service Rifle.

Participants

- USMC
- Canada/ SNC Technologies

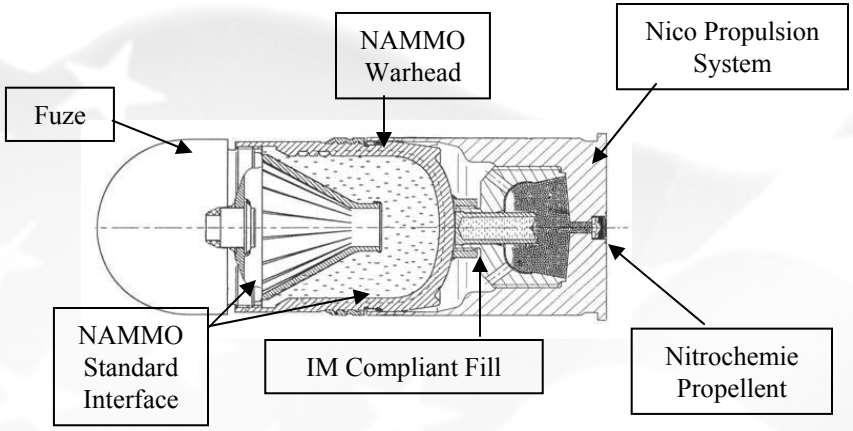
Funding:	FY05	FY06	FY07	Total	Comments
FCT ($M):	.395			.395	
USMC($M):	.175			.175	

Schedule: Tech. testing 2Q05
Operat. Assess. 3Q06
Milestone C 1Q06

Procurement Potential ~ $1.6M
7,955 Units @ $200

POC: Ms. Shawn Prablek, 703-432-4296
PM: Mr. Robert Ream, 703-432-3607

40MM High Explosive Dual Purpose (HEDP) Product Improvement Program 05 Project



Project Description

Integrate an improved propulsion system, propellent, standardized fuze interface and an improved Insensitive Munitions energetic tech into 40mm HEDP for use in MK19 and MK47.

Key Participants:

- Norway, NAMMO
- Germany, Nico Pyrotechnic
- Switzerland, Nitrochemie
- SOCOM
- USMC

Technology:

- 40mm HEDP PIP for use in the MK19 and MK47

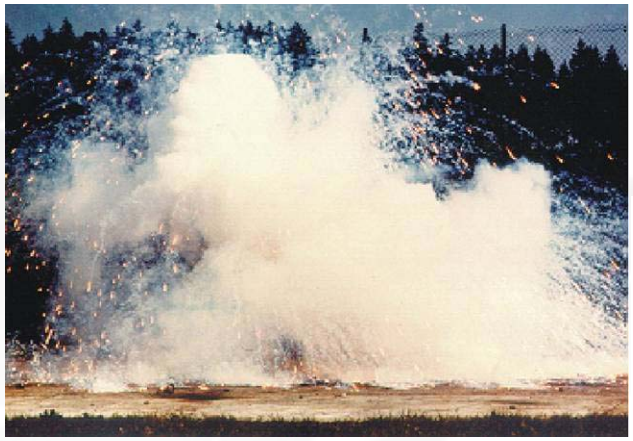
Benefits to the Warfighter

- Increase Performance
- Increase Operator Safety
- Increase Transportation Safety

Schedule:(2004-2007):

- Contract Award: 3th Qtr FY04
- WSESRB Certification: 1st Qtr FY07
- Procurement Decision: 4th Qtr FY06

66mm Grenade Discharger, Visual and Infra-red Screening Smoke (VIRSS) 06 FCT Proposal



Technology

An improved 66mm IR Smoke Grenade which is used to conceal armored vehicles on the battlefield, preventing detection in the visual and IR bands against modern threats.

Objectives

Effectively screen armored vehicles and troops on the battlefield from visual and IR detection by enemy forces. Utilize the current USMC 66mm launching system without modification. Qualify a round that is safe for training.

Participants

- USMC
- PM, Ammunition
- USSOCOM
- Rheinmetall RWM, Germany

Schedule

Technical Test	4QFY06
Safety/Environmental Test	2QFY07
Milestone C	4QFY07

Funding

Funding ($K):	FY06	FY07	FY08	Total
CTO:	$370	$500	$0	$870
Sponsor:	$300	$500	$300	$1,100

Benefits

RDT&E Cost Savings: $853K
O&S Cost Savings: $10M/yr
Procurement Potential: **40,200** Rounds for **$4.020M**, potential future procurement to Marine Corps AAO of 383,800 Rounds for $38.38M
Other Benefits: The VIRSS will allow the War fighter to resume training on amphibious ranges with the 66mm IR Smoke Grenade. Currently, the round is used only on the battlefield.

POC: Ms. Shawn Prablek, 703-432-4396
PO: Mr. Thomas Frush, 703-432-3155

CTG, 7.62mm 4&1 Link (REHA)
06 DAC Proposal

Technology

Cartridge, 7.62mm Lead free (green ammo). The lead free cartridge will solve the environmental problems associated with the use of 7.62mm ammunition that contains lead components.

Objectives

- Prevent environmental contamination of lead build up at training ranges
- Reduce the cost for range clean up and lifecycle cost of the cartridge

Participants

- USMC
- PM, Ammunition
- Nammo, Norway ; ATK, USA ; Winchester, USA ; Kilgore, USA

Schedule

Environmental Test	2QFY07
Filed Test	3QFY07
Milestone C	4QFY07

Funding

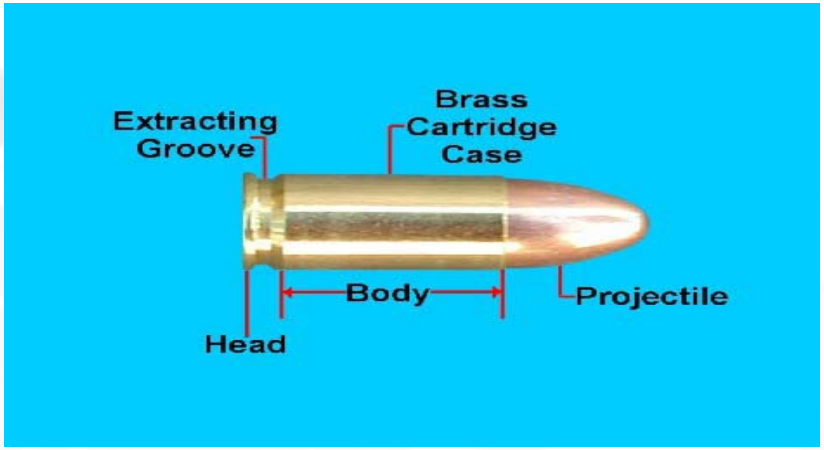
Funding ($K):	FY06	FY07	Total
CTO:	$250	$0	$250
Sponsor:	$300	$150	$400

Benefits

RDT&E Cost Savings: $8.8M
O&S Cost Savings: $50M
Procurement Potential: 13.2M Rounds for $6.864M
Other Benefits: These rounds will have no compromise in ballistic performance. Qualification of this round will allow for decreased requirements for enclosed firing restrictions.

POC: Ms. Shawn Prablek, 703-432-4396
PM: GySgt. Mavrick Powell, 703-432-3150

CTG, 9mm Ball (REHA)
06 DAC Proposal



Technology

Cartridge, 9mm lead free (green) ammo. The lead free cartridge will solve the environmental problems associated with the use of 9mm ammunition that contains lead components.

Objectives

- Prevent lead contamination at training ranges
- Qualify a round that will reduce the need and cost for range clean up and the lifecycle cost of the cartridge

Participants

- USMC
- PM Ammo
- Nammo, Norway ; ATK, USA ; Winchester, USA ; Kilgore, USA ; Remington, USA ; Elk River Corp., USA ; Precision Ammunition, USA

Schedule

Environmental Test	2QFY07
Filed Test	3QFY07
Milestone C	4QFY07

Funding

Funding ($K):	<FY>	<FY>	Total
CTO:	$250	$0	$250
Sponsor:	$250	$150	$400

Benefits

RDT&E Cost Savings: $5.8M
O&S Cost Savings: $65M
Procurement Potential: 16.8M rounds for $2.184M
Other Benefits: The round will not compromise any ballistic performance of the previous lead round. The round will allow for decreased requirements for enclosed firing restrictions.

POC: Ms. Shawn Prablek, (703) 432-4296
PM: GySgt Mavrick Powell, (703) 432-3150

FA Suppressor 06 DAC Proposal

Technology

SUREFIRE sound Suppressor provides the following features; noise and flash reduction, “Fast Attach / detach” mounting solution, limited length added to the weapon system, light weight and allows for no loss of accuracy and minimal impact shift (+/- 1 m.o.a.) of the weapon system. The suppressors have + 10,000 round durability and minor maintains. This system gives the operator the lightweight and maneuverability to be more effective in combat.

Participants

USMC
PM, Infantry Weapons
Surefire, LLC., Fountain Valley, CA

Funding

Funding ($K):	FY06	Total
CTO:	$500	$500
Sponsor		

Benefits

RDT&E Cost Savings: $1.8M
Fielding Reduction: 6 months
Implementation Plan/Other Benefits: The FA Suppressor by Surefire gives the operator a suppression system that produces no flash, can be mounted on the weapon for continued operation, quick attach/release, and durability so that it does not have to be removed in combat. It will also increase the accuracy of there system.

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