Office of the Under Secretary of Defense (Research & Engineering)

Foreign Comparative Testing (FCT)

Colonel Corey “Lite’nin” Beaverson, USAF

Director, Global Capability Programs (GCP) Office

FCT Mission

Mission: Find, Assess & Field World-Class Technologies to Enhance Military Capabilities and Provide Long-Term Value

- ***Technologies should present:***
  - ***Significant cost savings resulting in positive ROI***
  - ***Significant performance enhancements***
  - ***Significant schedule savings resulting in earlier fielded capability***
  - ***Novel, Innovative approaches***
- ***Connects Foreign Technologies to U.S. DoD Development and Acquisition Programs***
- ***Strengthens Alliances by sourcing world-class solutions to shared defense problems through "2-way street" of defense procurement***

OSD Selects & Funds Projects. Military Services & USSOCOM Execute Projects.

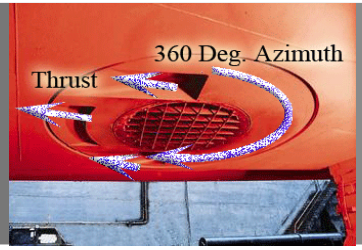
Measuring Progress
- Last 40 Years -

- *OSD investment: $1.42 Billion (constant FY20 $)*
  - *Led to procurements of 281 projects worth over $11B*
- *Accelerates Fielding an Average of 2 - 4 Years*
  - *Vice starting a new U.S. defense Research & Development program*
- *Enhances U.S. Industrial Base*
  - *Foreign vendors teaming with U.S. industry*
  - *34 states & 1/3 of projects procured*
- *Average project – $500-700K/year, 18-24 months*
  - *Review 100's of technologies*
  - *10 – 15 new starts/year*

FCT Evaluation Options

Developmental Prototype (TRL 6)

Operational Prototype (TRL 7)



Qualification Test (TRL 8-9)

Assessment

Transition/ Procurement

FCT projects may be side-by-side comparative evaluations

Focus Areas for 2020

Readiness and Joint Lethality in Contested Environments

- Improve the ability to strike the enemy, across the spectrum from close combat in complex terrain to mobile targets inside adversary air and missile defense networks.

- Improve the ability to deploy, survive, operate, maneuver, and regenerate in all domains while under attack, to include active and passive defenses as well as distributed logistics and maintenance technologies

Technologies to Support Modernization in

- Space - Microelectronics - Cyber Strategy
- Fully Networked Command Control and Communications
- Quantum Science and Computing - 5G
- Hypersonics - Directed Energy - Autonomy
- Machine Learning, Artificial Intelligence - Biotechnology

Technologies satisfying urgent operational needs on a relevant fielding schedule

Technologies providing significant life-cycle cost savings

FCT Process

Selection Year

Selection Criteria:

OSD (Top Down)

- OSD Priorities/Focus Areas
- Joint Application
- Cost Avoidance
- Long Term Value

Services (Bottom-Up)

- Mission Need
- Sponsor Support/Endorsement
- Risk (Cost/Schedule/Performance)
- Procurement Strategy

Project Execution Years 1 & 2

Contract & Funding → Test & Evaluation Phases → Reporting & Project Closeout → Procurement Decision

Expedited process available to respond to Emerging Operational Needs

Working with FCT

- *Marketing Materials*
- *Product templates*
- *Individual meetings with FCT*
- *Trade shows, local conferences, e.g. AUSA, Modern Day Marine, etc.*
- *Industry days in the Washington, DC area*
- *CTO international travel*

Send Us Your Product Information

Product Template

- Product
- Company Name
- Country
- POC Information
- Website
- Technology Readiness Level
- Countries Using
- Application (So What?)
- Science (How It Works)
- Data (Key Performance Metrics)
- US Partners
- Previous Work w/ DoD

OSD Foreign Comparative Test – Product Template

Product: XX mm High Velocity (HV) Airburst Munitions System (ABMS)

Company Name: Advanced Systems (AS)
Country: Republic of Antarctica
Point of Contact: Mr. Jones
Phone: (555) 555-5555
Website: www.abcd.com
Email: abcd@abcd.com

Short Description: The HV ABMS consists of a Fire Control System, an Ammunition Programmer and XX x XX mm Air Burst Munitions. High explosive, Flash and Bang, Counter defilade, increased lethality, improved accuracy.

Technology Readiness Level (fielded, lab tested, operational test): TRL: 9 The HV ABMS is qualified and in production.

Countries using the technology: Madagascar, Dominican Republic, Greenland, etc.

Application: (the so what?) The HV ABM is specially designed to allow soldiers to effectively engage enemies in defilade and to provide improved accuracy and higher lethality through a technologically improved muzzle velocity compensation capability.

Science (how it works): Muzzle velocity compensation for the immediate round fired. The 40mm HV ABMS is an upgrade kit to existing launchers to provide Air Bursting Precision capability. The FCS accurately lazes the target and the ballistic card computes the time to burst. The computed time to burst based on the measured velocity is programmed into the fuze only upon exit at the ammunition programmer. Enhanced safety with its built-in self-destruct mode and gives ABM the ability to function as a point detonating HE cartridge as well as an Air-Burst cartridge.

Data:
• Grenade Length: XX mm • Weight : XXX gm
• Muzzle Velocity : XXX m/s • Maximum Range: XXXX m
• Lethal Radius : X m • Arming Distance : XX to XX m
• Fuze Type : Programmable Time Fuze

U.S. Partner: AS does not currently have a relationship with a US company.

Previous work with DoD: Technology developed through US DoD laboratory funding.

Help us understand how your technology is Better, Cheaper or Novel!

How to Get More Info

- *CTO Website -- https://www.fct.mil*
  - *Additional background information on FCT*

    No CAC needed - go to the Help tab

- *Contact the Security Cooperation Office / Attachés in the U.S. Embassy in your country*

- *Contact your Embassy in DC – Defense Attaché or the trade or science and technology organization*

- *Contact CTO directly – either the main office or Service/SOCOM specific contacts given in this brief*

Key Points of Contact

OSD	CTO Main		571-372-6803
	Col Corey Beaverson	corey.beaverson@us.af.mil	571-372-6825
	Jeffrey Lipsky	jeffrey.d.lipsky.civ@mail.mil	571-372-6821
	Mark Morgan	mark.j.morgan26.ctr@mail.mil	571-372-6819
	Sean Hilber	sean.a.Hilber.ctr@mail.mil	571-372-6822
	Jeremy Vipperman	jeremy.s.vipperman.ctr@mail.mil	571-372-6804
	Darius Watts	darius.y.watts.ctr@mail.mil	571-372-6405
Army	Mark Hassler	mark.c.hassler.civ@mail.mil	410-278-8591
Navy	Arthur Webb	arthur.webb@nrl.navy.mil	202-404-2552
	Mark Stoffel	Mark.stoffel.ctr@navy.mil	571-227-6905
	Lilia Ramirez	Lilia.l.Ramirez.ctr@navy.mil	703-405-1311
	Steve Duong	Steve.duong@usmc.mil	703-784-2755
AF	William Reed	william.a.reed32.ctr@mail.mil	202-404-4735
SOCOM	Gail Kemeliotis	Gail.m.Kemeliotis.ctr@socom.mil	813-826-0192

HISTORICAL EXAMPLES

Naval Strike Missile (NSM)

Technology

- Highly survivable, anti-surface missile with a range of 100+ nm
- State-of-the-art design with low observable features
- Imaging Infrared seeker and onboard database capable of independent target detection, recognition, and discrimination
- Multi-purpose warhead with intelligent fuze

History

- The Norwegian Naval Strike Missile's initial serial production contract was signed in June 2007. It was chosen by the Royal Norwegian Navy for its new frigates and patrol boats
- In 2008 the NSM was selected by the Polish for land-based missiles

Cost

- FCT funds: $0.100M; Sponsor (Navy) funds: $3.9M

Schedule

- Project approved on 3 September 2014
- Littoral Combat Ship (LCS) Demonstration occurred on 23 September 2014

Testing

- On 23 September 2014, a single NSM was successfully fired from the flight deck of the USS Coronado (LCS-4)
- The test validated assumptions including targeting accuracy, range, and system operability

Transition

- In May 2018, the Navy awarded a $14.8M contract for the initial procurement of NSM missiles and launchers for fielding on LCS and Future Frigates

Benefits

- Fills a capability gap for the Navy's Over-the-Horizon Weapon System (OTH-WS)

Other

- In response to emerging operational needs, additional FCT funds ($2.550M) were provided to the Army for another successful demonstration of the NSM fired from a ground vehicle during the Rim of the Pacific Exercise in May 2018

High Pressure Pure Air Generator (HiPPAG)

Technology

- Integrated pure air compressor and filtration system which was designed to replace rechargeable gas bottles on aircraft for cryogenic missile seeker cooling
- Draws in atmospheric air to provide a continuous supply of high pressure pure air, which results in unlimited mission duration and eliminates the logistics burden associated with gas bottles
- Generates gas within the launcher and reliably purifies it to the very highest standards
- Gas is always available 'on-demand' and the potential sources of contamination are eliminated

Cost

- FCT funds: $4.239M (FY87-FY00)

Schedule

- Selected for FCT in 1986
- Demonstrated on USMC AH-1 Helicopter in 1987
- Demonstrated on Canadian CF-18 Aircraft in 1989
- Qualified for Navy Aircraft in 1994
- In service on USMC AV-8B Aircraft in 1997
- In service on Marine Corps AH-1 Helicopter in 1999
- In service on USMC F/A-18 C/D Aircraft in 2000
- In service on Navy F/A-18 E/F Aircraft in 2001

Transition

- 3000+ HiPPAG 320 systems delivered to US Navy from 1997-2018 for Sidewinder AIM-9 L/M missiles on US Navy and Foreign Military Sales aircraft including: AV-8B, F/A-18 C/D, F/A-18 E/F, AH-1 and F-35

Benefits

- Reduced maintenance and logistics costs by removing requirement for cryogenic cooling bottles
- Successful FCT tests led to other DoD Programs leveraging HiPPAG technology, replacing explosive cartridges for weapons ejection systems with improved safety and lower cost
- Over 9,000 HiPPAG systems delivered Worldwide, including: Small Diameter Bomb Rack on F-15 & F-16 (2005); F-35 Weapons Ejection Systems (2008)

SOF Combat Assault Rifle (SCAR)

Technology

- Single weapon able to fire variety of munitions
- Adaptable to threat and location of operation
- Improved reliability, accuracy, and durability over current M4A1 Carbine

How Found?

- The rifle was developed by Belgian manufacturer FN Herstal (FNH) for the United States Special Operations Command (SOCOM) to satisfy the requirements of the SCAR competition
- FNH entered the competition (via FCT) and was deemed best product designated “Operationally Effective” and “Operationally Suitable” for fielding to US Forces

Cost

- FCT funds: $1.06M; Sponsor (SOCOM) funds: $2.06M

Schedule

• Project requirement identified	10Sep03
• Technical Test	2Q04
• Operational Test	4Q04
• Milestone C	2Q05

Testing

- Evaluated commercially available weapons
- Incorporate modularity to accommodate other caliber ammunition through spiral development

Transition

- FNH in conjunction with US company Crane successfully passed Low-Rate Initial Production acceptance and testing in June of 2007
- Plans to fully field the weapons included a $25M (procurement) budgeted in FY2008 Presidential Budget and over $6M slated for FY2009
- 20,000 systems estimated procurement $28M

Benefits

- RDT&E Cost Savings: $2.2M
- O&S Cost Savings: $1.0M
- Improved capability and reliability for SOF

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Director, Global Capability Programs Office

(571) 372-6803

corey.beaverson@us.af.mil

Portal: https://www.fct.mil