

***Leveraging Small Business
Innovative Research (SBIR)
program funding for engaging the
small business Cyber workforce***

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Why contract directly with Small Business?

“It is the declared policy of Congress that the government should aid, counsel, assist, and protect, insofar as is possible, the interests of small-business concerns in order to preserve free competitive enterprise, to ensure that a fair proportion of the total purchases and contracts for property and services for the government be placed with small business enterprises, to ensure that a fair proportion of the total sales of government property be made to such enterprises, and to maintain and strengthen the overall economy of the nation.”

- SBIR program allows direct contracting with Small Business (SB) to get access to “out-of-the-box” thinking and non-traditional solutions
- SB contracting strengthens the American economy
- SBIR program increases access to innovation, maintains a viable industrial base and stimulates competition

Small Business Innovative Research (SBIR) Program Basics

- 2.5% of Agency R&D Budgets set-aside for SBIR awards
 - AFSPC contributes ~\$25M/year
 - Cyber Command contribution ~??
- Agency SBIR awards per SBA guidelines [1]:
 - Phase I: Concept ~\$150K
 - Phase II: Prototype ~\$1M
 - Phase III: Deployment ~unlimited using Program funds
- SBIR offers untapped potential for Cyber Command to access small business innovation
 - Few SBIR Phase III transitions have been reported within AFSPC_[2]

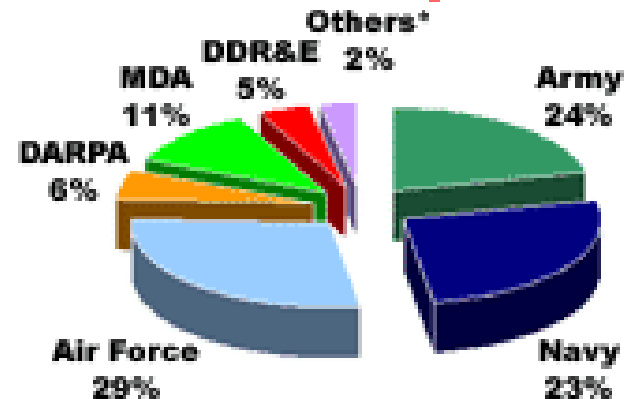
1. SBA SBIR Policy Directive

2. GAO-11-21, Space Acquisitions: Challenges in Commercializing Technologies
Developed under the SBIR program

DoD SBIR Program

- Congressional Goals:
 - stimulate technological innovation
 - increase private sector commercialization of federal R&D
 - increase small business participation in federally funded R&D
 - foster participation by minority and disadvantaged firms in technological innovation
- DoD funds > \$1B/year towards SBIR Ph I + II

DoD SBIR Components



*Others includes: DTRA, SOCCOM, CBD, NGA, DLA, DMEA

Figure 1

Air Force SBIR/STTR Program

- The Air Force SBIR/STTR Program Manager (Gus Vu) is responsible for:
 - Establishing the program schedule
 - Requesting and collecting topics for the Department of Defense (DoD) SBIR Program Solicitations
 - Allocating the number of topics among the Program Executive Officers (PEOs), Designated Acquisition Commanders (DACs), AFRL Technology Directorates (TDs), Air Logistics Centers (ALCs), Test Centers, and Product Centers
 - Managing and allocating funds to the AFRL TDs, ALCs, and Test Centers
- Air Force SBIR/STTR Participation (#Topics)
 - SBIR 10.1 (1), 10.3 (256), 11.2 (222 planned)
 - STTR 10.B (40)



- Topic Pre-Release
- Solicitation Schedule Info
- Topic/Award Data Search
- Advanced Technology Search
- Success Story Search
- Small Business Search
- Prime Contractor Search
- Waiver Request Info
- Commercialization Pilot Program

Topic/Award Data Search

Agency:

Criteria:
Keyword = cyber,
Agency = ALL

Topics

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Topic No.	Topic Title	M.O.	S.O.	Awards
AF112-022	Fusion, Management, and Visualization Tools for Predictive Battlespace Awareness and Decision Making	RH	SMC	0
AF112-029	Countering Future Cyber Threats to Air Force Weapon Systems	RI	ASC	0
AF112-045	Quality of Service-based (QoS) Service Level Agreement (SLA) Specification and Analysis Toolkit for Service Oriented Architecture (SOA) Systems	RI	RI	0
AF112-053	Active Network Security Situation Awareness and Impact Mitigation	RV	ESC	0
AF10-BT18	Securing Applications by Limiting Exposure	AFO	AFO	0
AF103-008	Integrity Management for Mixed Critical Unmanned Air Vehicle Systems (UAWS)	RB	RB	3
AF103-026	Pilot Wrist Computer System (PWCS)	RH	ASC	0
AF103-047	Mission Assurance and Information Security	RI	ESC	0

Topic/Award Data

Government User

E-mail Address:

Password:

Publications

[SBIR/STTR Advantage](#)

Program Office

Air Force Research Laboratory (AFRL/XPP)
1864 4th Street
Bldg 15 Rm 225
Wright-Patterson AFB, OH 45433
Toll Free: 1-800-222-0336
Fax: (937) 255-2219

Example Topic: AF112-029 Countering Future Cyber Threats to Air Force Weapon Systems

Government Sponsoring Office: ASC

Technology Areas: Information Systems
Technology

Objective: Develop innovative methods to reduce/eliminate susceptibility to cyber threats to weapons systems.

Description: Ensuring confidentiality, integrity, availability, non-repudiation, and authentication of Weapons Systems is essential to establishing and maintaining trusted platforms. These platforms may operate in networked or non-networked environments which are vulnerable to threat sources of network-based attacks, inadvertent or malicious insider threats due to data propagation through removable media devices and vulnerabilities introduced through the supply-chain. In addition, the effort to detect and repair systems after cyber attack exacts a tremendous burden through man-hours, software costs, and lost processing time due to processor overhead, system downtime and potential loss of data.

Phase I: Develop preliminary design based on intended implementation. Detail how design will be used to assure mission essential functions, critical data flows and information processes into and out of the system without interfering with mission essential devices and processes.

Phase II: Develop the designed tool as a means of allowing mission-critical devices and processes to avoid and/or survive malicious attacks and subversion of the system. Demonstrate tool robustness to unexpected system states potentially introduced by bad input parameters consistent with a cyber attack and extraordinary conditions; show the cost-effective benefit of the design to real-world applications.

Phase III Dual Use Applications:

Military application: The mission assurance provided by this research could provide a more robust, secure and mission-assured weapons platform.

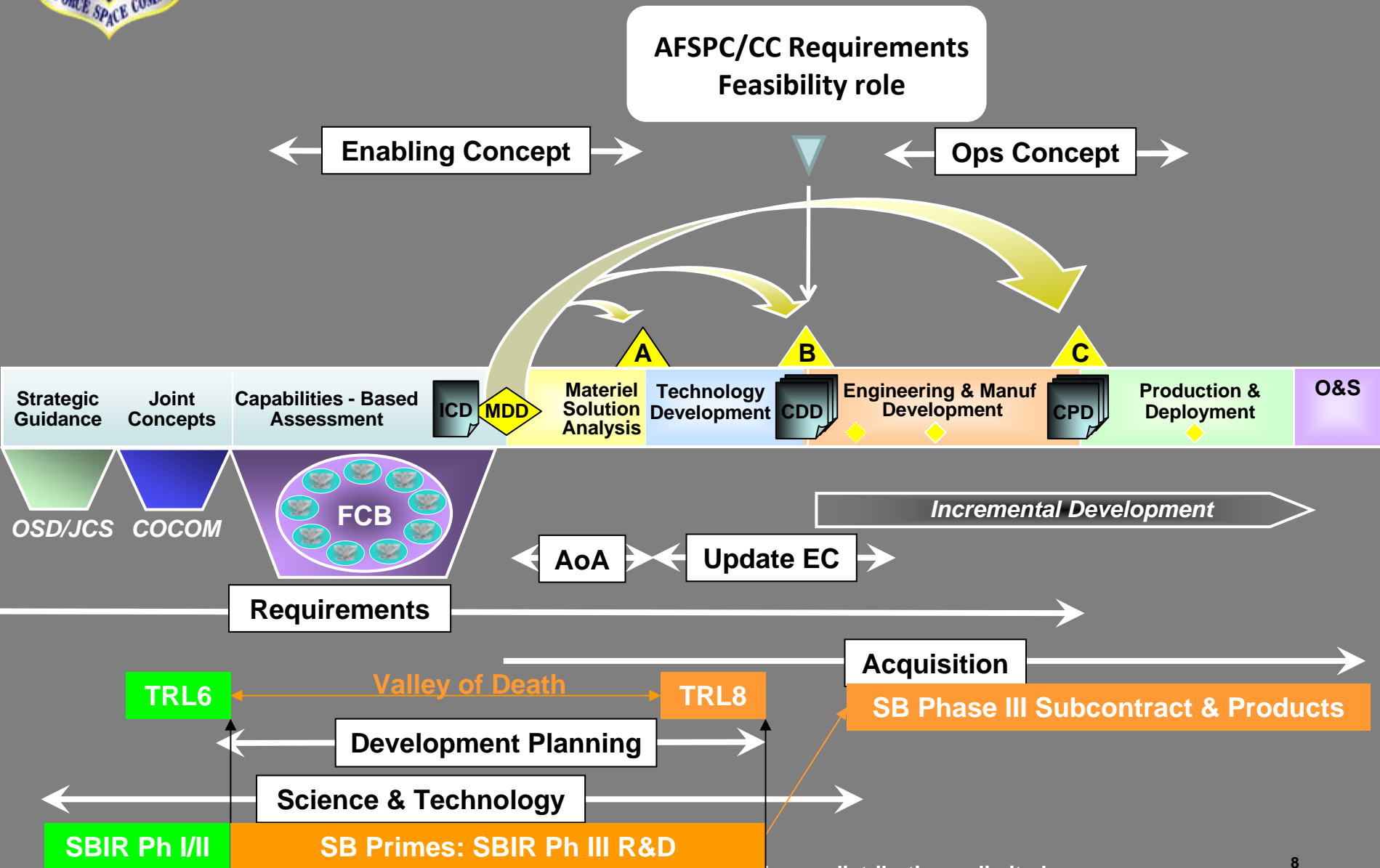
Commercial application: This research could likewise improve security and robustness of commercial information and infrastructure systems.

References:

Keywords: Mission Assurance, Mission Assessment, Cyber Security, Contested Environment, Mission Essential Functions, Threat Avoidance.



Requirements & Acquisition



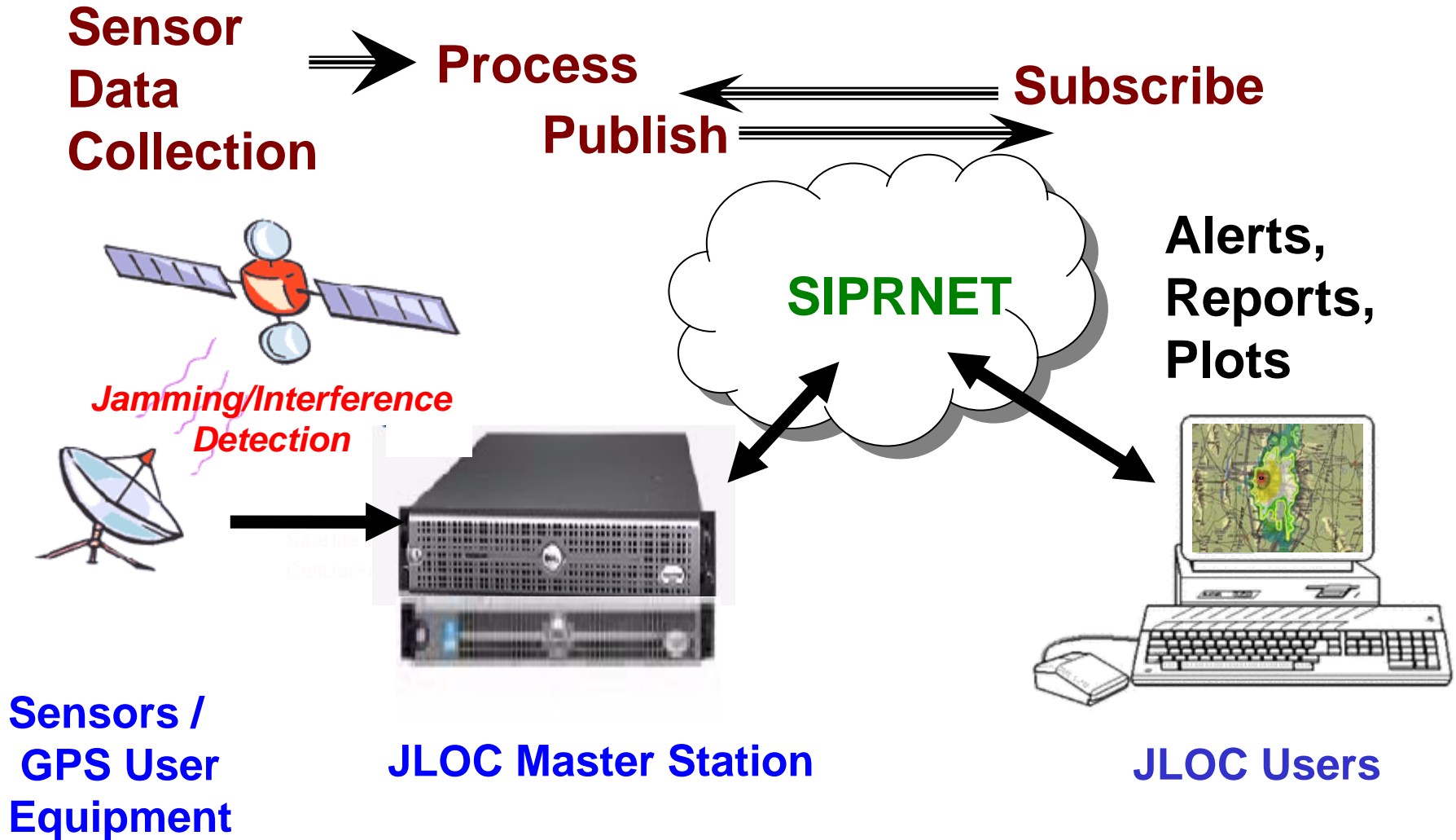
SBIR Phase III Statutory Authority

- Phase III awards are defined as those that “derive from, extend, or logically conclude prior SBIR research and are funded with non-SBIR funds”
- Phase III (or 2nd Phase II) may be funded by different agency or agencies that funded the original SBIR Phase I or II contract
- Can be any type of funding agreement (e.g. grant, contracts, cooperative agreement or subcontracts)
- Can be for research, research and development, services, products, production, or any combination
- Can be from a competitive solicitation (e.g. open competitive RFP or BAA) or sole source awards
- No limit on number of awards or dollar value

SBIR Commercialization Pilot Program

- CPP Authorized by NDAA 2006
 - to accelerate transition of SBIR-funded technologies to Phase III
 - especially for systems being developed, acquired and maintained for the warfighter
- Navy and Army CPP
 - Funds SB directly using existing Phase II or new Phase III contract when program provides TTA and matching funds
- Air Force CPP
 - Facilitates SBIR transitions through prime/supply chain contractors
 - Has significantly less recorded CPP transitions than other services
 - AF SBIR program can match some Program Office funds when TTA is established to transition SBIR technologies
- Congress is establishing a Phase III funding line item
 - Rapid Technology Transition and Technology Insertion Program

GPS Jammer Location (JLOC) System



JLOC: Example of SBIR Warfighter Benefits

- Provides new capabilities for the warfighter
 - SBIR proposal described a system to detect and alert on areas of GPS denial to provide SA to warfighters on GPS denial effects
- SBIR process enabled rapid operational deployment
 - JLOC IOC deployed in 2007 under Phase III SBIR contract
 - Software delivered with SBIR data rights allowed unlimited royalty-free distribution for Gov Purposes
 - JLOC Client software garnered wide warfighter support
 - 200 accounts established w/ many times more users
- SBIR enables innovative new operational capabilities
 - JLOC transitioned to NGA and now part of their POM
 - Additional JLOC system is now being planned for DHS

Team Submarine – Horizontal Integration Approach for Leveraging their SBIR Investments

\$1B of Small Business Phase III contracts let for subsystems

Technology Insertion and modernization budgets

- Develop once use many places
- Instant market for SBIR products/processes

CCSM

Darlington

SCS C4I & IM&M Technology
 Combined Operations Wide Area Network

Planning Systems

GCCS Development & COTS Applications

DSR

Advanced Information Systems
 Software Migration Legacy Trainer
 Photonics Mast Workstation

Progeny

Audio Signals
 Active Emissions
 Information Assurance
 AN/WLR-1 AI&R
 Manning Reduction

Trident Systems

Mobile Computing for Submarine Applications

TCN

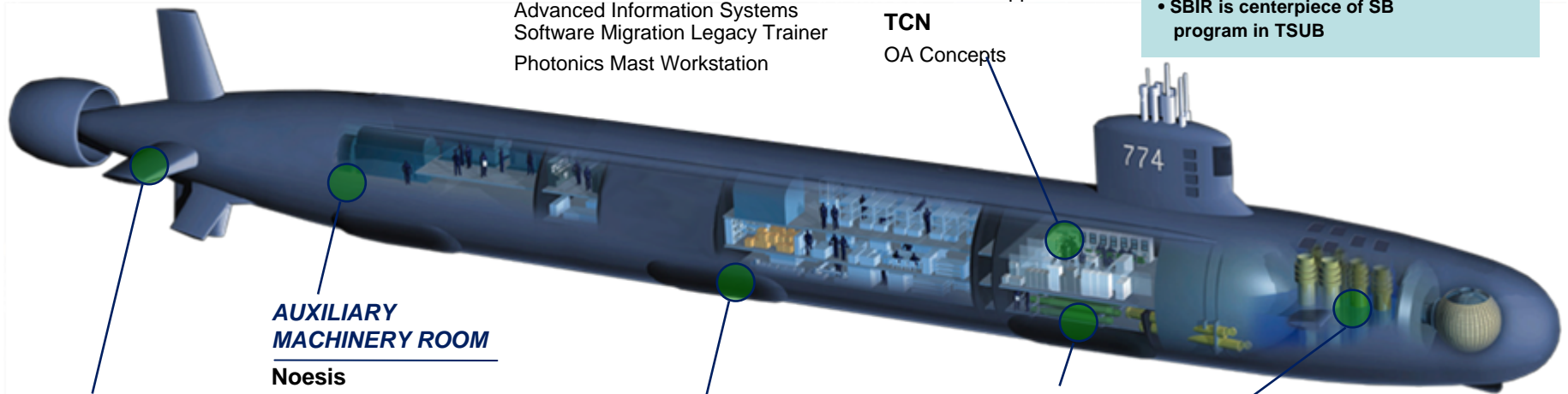
OA Concepts

Acquisition Coverage

- Blanket coverage by Major Ship programs
- Local coverage by PMOs

Leadership Commitment

- PEO leadership recognizes value
- SBIR is centerpiece of SB program in TSUB



AUXILIARY MACHINERY ROOM

Noesis

High Performance Brushes Technology

PRESSURE HULL

TKC

Innovative Modeling

Compudrive

Electromechanical Actuator and COMT

WEAPON LAUNCH, STOWAGE & HANDLING

Progeny

Tools for VME Interactive Acoustic Analysis Process
 Multi Tube Weapon Simulator
 Common Weapon Launcher

STERN / PROPULSION

MSI

Array Improvement



VIRGINIA Class Submarine

JTRS JPEO SBIR Program

- JPEO JTRS has established a unique SBIR/STTR program to manage \$14M-\$17M/year of SBIR funds from Army, Navy, USMC and AF joint projects
- Provides “seed money” to promising US Small Businesses with the objective of developing products that will provide value to the JTRS programs and long-term business opportunities for the firms
- Operates under DoN SBIR program (John Williams)
- Over 80 SBIR/STTR prime contracts awarded since January 2007 and over \$37M on contract to date
- POCs: Dr. Rich North, JTRS JPEO TD and Al Sweeney, JTRS SBIR Manager

SBIR Data Rights

- SBIR firm retains: “rights to data generated by the concern in the performance of an SBIR award”
- The Government may not release or disclose SBIR data to any person, other than its support services contractors, except
 - (a) As expressly permitted by the Contractor;
 - (b) For evaluational purposes; or
 - (c) A release, disclosure, or use that is necessary for emergency repair or overhaul of items operated by the Government.
- Agencies receive a nonexclusive, royalty free license for Government use in technical data generated under an SBIR award.

SBIR Phase III and Data Rights

- Agencies cannot use SBIR rights in technical data to produce future technical procurement specifications
- Preference must be given to the SBIR developer for agency requirements that constitute a Phase III
 - Congress intended that Phase IIIs be awarded sole source to the SBIR developer
 - Award of a Phase III to other than the SBIR developer must be reported to SBA prior to award for approval to be granted
- SBIR technical data rights are non-negotiable during any SBIR, including Phase III, awards
- An agency may not in any way make issuance of an SBIR award, including a Phase III, conditional on data rights

Draft Open Architecture Software Information Repository (“Marketplace”)

- IR Community Source Code
 - Source code posted to IR
 - Can be freely shared with approved IR participants
 - Can be re-used and modified for Gov Purposes
- Royalty Bearing Source Code
 - Source code posted to IR in Escrow
 - Description of APIs is provided with open interface for integration
 - Royalty is required to download Company Proprietary apps
- SBIR Source Code
 - Source code posted to IR in Escrow
 - Description of APIs is provided with open interface for integration
 - SBIR apps can be downloaded royalty-free for Gov Purposes
 - SBIR apps can be maintained by Support Contractors but enhancement or modifications must be made by SBIR company
 - Becomes IR community code on expiration of SBIR data rights – SBIR data rights extend though when upgraded

Conclusion

- Small business concerns are recognized as a unique national resource of technological innovation
- SBIR program provides easy access to innovation from the small business community
- SBIR funds can be leveraged to accelerate and enhance Cyber R&D efforts by actively engaging with SBIR program
- Team Submarine and JTRS JPEO provide examples of SBIR program models that Cyber Command could adopt
- Establishing an SBIR IR “Marketplace” could accelerate deployment of royalty-free SBIR apps to support Cyber operations (Navy Open Architecture PM offered to assist)

BackUp

SBIR POCs

- Chris Rinaldi, DoD SBIR Program, 866-724-7457
- Gus Vu, Air Force SBIR PM, 937-656-9015
- John Williams, Navy SBIR PM, 703-696-0342
- Dick McNamara, Exec Dir PEO Subs (ret), 703-527-2118
- Dr. Rich North, JTRS JPEO TD, 619-524-7405
- Al Sweeney, JTRS JPEO, SBIR Manager, 619-524-0022
- Nick Guertin, Navy Principal System PM for Open Architecture and Systems Engineering, (202) 781-3425

SBIR Reference Material

- www.dodsbir.net
- www.sba.gov/SBIR/
- <http://www.acq.osd.mil/osbp/sbir/>
- www.afsbirsttr.com
- <https://learn.dau.mil/html/clc/Clc1.jsp>
DAU Course FAC010, SBIR/STTR

SBIR Phase III Sole Source Justification and Approval (J&A)

DUSD(AT) Memo

“sufficient to state for purposes of the justification that the project is an SBIR Phase III award ... and is authorized under 10 U.S.C. 2304 (b)(2)”



DUSD(A&T) Memo

Example Contract Vehicles

- NAVAIR provides standard IDIQ contract model for Phase III task orders
- BAA RFP for SB to submit SBIR Ph III proposals against
- GSA Limited Source Justification and Approval can be used for sole source award through a GSA schedule for eligible Phase III work