

# **Report on Department of Defense Small Business Innovation Research Program Commercialization Pilot Program (CPP)**

## **Report for Fiscal Year 2009**



Office of the Under Secretary of Defense  
(Acquisition, Technology & Logistics)

Office of Small Business Programs

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## **EXECUTIVE SUMMARY**

The United States Department of Defense (DoD) Small Business Innovation Research (SBIR) Commercialization Pilot Program (CPP) is an initiative authorized by section 252 of the National Defense Act for Fiscal Year 2006 (FY06), Public Law No. 109-163 (NDAA). Section 252 amends section 9 of the Small Business Act (15 U.S.C. 638) to add a new subsection 9(y), that authorizes the Secretary of Defense (SECDEF) and the Secretary of each Military Department (MILDEP) to create and administer a CPP. The purpose of the CPP is to accelerate the transition of SBIR-funded technologies to Phase III, especially into systems being developed, acquired and maintained for the warfighter. To fund the administrative cost of the pilot programs, section 9(y) authorizes use of an amount up to 1% of the SBIR set-aside budget. These funds may not be used to make Phase III awards<sup>1</sup>. The Secretary of Defense is required to submit an evaluative report regarding activities under the CPP to the Committee on Armed Services and the Committee on Small Business Entrepreneurship of the U.S. Senate, and the Committee on Armed Services and the Committee on Small Business of the U.S. House of Representatives. The report is to include:

- An accounting of the funds used in the CPP;
- A detailed description of the CPP, including incentives and activities undertaken by acquisition program managers, program executive officers and prime contractors; and,
- A detailed compilation of results achieved by the CPP including the number of small business concerns assisted and the number of projects commercialized.

Each Service has a program that includes the fundamental activities of identifying CPP participants, developing transition agreements, and offering technical assistance. The Services also use investment strategies, coupled with CPP authority activities, to facilitate transition. SBIR investment includes SBIR funds utilized to develop and mature the technology including Phase I, Phase II, Phase II enhancements, and contract modifications, while non-SBIR investment includes all sales and investment from outside sources. The following results demonstrate that the activities performed under CPP authority, described in the Services' reports, aid in attracting a significant non-SBIR investment.

<b>Results</b>	<b>Air Force</b>	<b>Army</b>	<b>Navy</b>
<b>FY09 CPP Projects</b>	30	25	31
<b>Total CPP Projects</b>	148	50	129
<b>Total SBIR Investment</b>	\$46.3	\$75M	\$221.2M
<b>Total Non-SBIR Investment</b>	\$141.8M	\$182M	\$408.8M

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<sup>1</sup> SBIR is a three phase program; Phase I is a technical feasibility study, Phase II is technical development to prototype demonstration, and Phase III is commercialization (non-SBIR funding only).

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## **1.0 AIR FORCE COMMERCIALIZATION PILOT PROGRAM (CPP)**

### **1.1 Air Force CPP Accounting of Funds**

Air Force FY09 CPP funds were obligated to continue the Small Business Innovation Research (SBIR) Transition Support Contract with MacAulay Brown Inc. (\$3.3M), and to fund necessary travel (\$45K) to support workshops and other transition activities.

### **1.2 Air Force CPP Initiatives**

Air Force conducts two types of Technology Interchange Workshops as the primary means by which stakeholders (program customers, integrators, SBIR firms, and laboratories) identify areas of mutual interest and collaborate. Program Executive Officer (PEO) workshops are conducted to enable the technology community to concentrate on meeting documented systems needs within each Air Force Product Center, while Focused Industry Workshops are conducted to facilitate Prime contractors search for SBIR solutions to their own technology-based needs as they relate to serving Air Force interests.

In FY09, the Air Force increased collaboration with the Navy, Army, Missile Defense Agency, and multiple industry partners. Air Force CPP conducted seven joint service industry workshops for 156 small businesses and facilitated nearly 300 one-on-one “technology matching” sessions. In addition to the workshops, Air Force CPP leveraged the 2009 DoD SBIR Beyond Phase II Conference as a forum to foster additional relationships between SBIR firms and industry. At that event, 23 prime contractors met with 71 small businesses in 95 one-on-one sessions.

Air Force CPP also provided on-site SBIR support within the PEO organizations, assisted with transition planning, and improved overall SBIR program execution processes based on transition experience. Transition Agents (TA), in place at each Air Force Product Center, fostered better understanding of technology needs and facilitated improvements in SBIR topic development and transition processes.

Air Force SBIR transition planning is documented via non-binding SBIR Technology Transition Plans (STTP) among transition stakeholders. Each STTP describes an operational need and SBIR technology relevance, identifies stakeholders and their roles in accelerating transition, establishes technology readiness goals, and specifies the funding required for success.

In addition to the above mentioned efforts, Air Force CPP initiated the “Air Force SBIR Transition Newsletter” in FY09 to highlight CPP successes and build PEO support of the SBIR program. Air Force also distributed the “Air Force SBIR Program Transition Support Process Guide” in FY09 to impart fundamental understanding and common processes for creating relevant SBIR topics, managing SBIR contracts/activities, and transitioning SBIR technologies.

### **1.3 Air Force CPP Results Achieved**

The Air Force approved a total of 30 projects in FY09 (see Appendix A) increasing the cumulative number of CPP projects since the inception of the pilot to 148 projects.

Cumulatively, the Air Force has invested \$46.3M in SBIR funding to CPP projects, which includes funding for acceleration of transition efforts. Stakeholders have contributed \$141.8M, a rate of return greater than 3-to-1. Air Force acceleration efforts all contribute to meeting the technology needs of at least one Air Force system or process. Currently, there are 23 acceleration projects expected to improve performance, 19 to provide new capabilities, 14 to reduce costs, and eight to increase reliability.

## **2.0 ARMY COMMERCIALIZATION PILOT PROGRAM (CPP)**

### **2.1 Army CPP Accounting of Funds**

Army FY09 CPP funds were obligated for contracted support services with MILCOM Venture Partners (MILCOM ) (\$2.6M) and to fund other CPP administrative activities (\$0.10M).

### **2.2 Army CPP Initiatives**

The Army CPP initiative assesses and identifies SBIR projects and companies with high transition potential that meet high-priority requirements, provides market research and business plan development, matches SBIR companies to customers and facilitates collaboration, prepares detailed technology transition plans and agreements, and provides additional funding for select SBIR projects.

In FY09, the Army conducted a detailed analysis of several hundred companies and held a series of progressive screening processes to understand each active Army Phase II SBIR project's potential for rapid transition and commercialization. In FY09, the Army utilized an electronic Commercialization and Technology Assessment (CTA) questionnaire containing over 80 questions to evaluate 472 active Phase II projects. A total of 302 companies participated, of which 140 companies demonstrated factors to warrant additional analysis, including: ability to support transition, importance of the project to the soldier, speed of transition, investment required, Technology Readiness Level (TRL), and Manufacturing Readiness Level (MRL). A significant amount of data processing and validation to support a multi-step recommendation process resulted in the identification of the FY09 projects.

The Army continues its efforts supporting SBIR commercialization into acquisition programs through expanded outreach, training, and collaboration opportunities for Program Executive Officers (PEOs) and acquisition program managers (PMs).

### **2.3 Army CPP Results Achieved**

The Army approved a total of 25 projects in FY09 (see Appendix B) increasing the cumulative number of CPP projects since the inception of the pilot to 50 projects.

Cumulatively, the Army has invested \$75M in SBIR funding to CPP projects, which includes funding for acceleration of transition efforts, and stakeholders have contributed \$182M, a rate of return greater than 2-to-1. Examples of CPP transition and commercialization progress are illustrated by the following achievements:

a) Product sales (\$30M) of an electronic health and usage monitoring (HUMS) system first transitioned to Special Operations Command's (SOCOM) rotary aircraft fleet through CPP. The company was acquired by Honeywell to augment its product offerings.

b) Sales in excess of \$55M of protective insert products to the government for use in the Interceptor Body Armor system to provide ballistic protection to warfighters.

c) A Low Rate Initial Production (LRIP) established for a universal robot controller designed to improve situational awareness for remote vision and field testing by multiple large system integrators and commercial manufacturers.

## **3.0 NAVY COMMERCIALIZATION PILOT PROGRAM (CPP)**

### **3.1 Navy CPP Accounting of Funds**

Navy FY09 CPP funds were obligated (\$3.3M) for CPP project management/execution, program management office support, firm assistance, database management/reporting, contracting, due diligence, acquisition office assistance, transition planning, outreach/prime contractor coordination, risk reduction assessments and planning, manufacturing/production readiness assessments, technical readiness assessments, and market analysis.

### **3.2 Navy CPP Initiatives**

One of the primary initiatives of the Navy's CPP program is setting aside approximately 20% of SBIR program funding and applying that to selected CPP projects, funding them above the normal Phase II limits. If projects meet a high priority Navy need, and they have a demonstrated potential for rapid transition into an acquisition program of record or fielded system, they have access to funds to advance their technology. Access to this funding requires completion of a Technology Transition Plan/Agreement (TTP/A) and commitment of non-SBIR matching funds. Currently, the Navy has signed TTP/As in place for almost every CPP project that is receiving additional transition funding. As part of the forthcoming Navy CPP guidelines, limitations will be placed on the amount of Phase II funding a firm can receive without having a signed TTP/A. TTP/As provide the transition requirements, the funding profile, detail the areas of risk, list the milestones that must be met, document the test and demonstration plans, and provide details on the management oversight of the project.

During the year, 17 on-site visits were made to specific CPP firms to confirm transition potential, assess technology readiness, and provide assistance to the firms. Navy issued specific reports for each firm visited providing them with recommended changes or improvements. Additionally, Navy held one-on-one meetings with numerous Phase II firms to discuss CPP requirements and transition potential of their technologies. These meetings were scheduled as part of specific outreach conferences including national and regional small business conferences, organizational sponsored small business conferences, the Navy Opportunity Forum, the Navy Transition Assistance Program kick-off meeting, and the DoD Beyond Phase II conference.

Prime contractor outreach resulted in numerous interactions with SBIR firms and acquisition sponsors. The Navy partnered with the Air Force and other DoD members to attend four Technology Interchange Workshops hosted by different major prime contractors during FY09. These events enabled 41 Navy SBIR firms to present prescreened technologies for potential partnership.

The Navy also has a number of ongoing initiatives that CPP participants can leverage. The Navy Transition Assistance Program (TAP) is available to all Phase II companies and provides market analysis, business planning, and the development of marketing materials. Participation in TAP culminates with a technology showcase and presentations at the Navy Opportunity Forum. CPP participants can also leverage technical assistance services that include assessments in the areas of risk, manufacturing and production, and technology transition, as well as assistance in the areas of engineering analysis (problem solving), best practices, transition planning, and testing and evaluation. The Navy has also launched an enhanced search capability available to the public at [www.navysbirsearch.com](http://www.navysbirsearch.com) to provide access to thousands of SBIR/STTR developed technologies. The search tool enables the user to find information on a

specific technology, read abstracts and summary reports, view quad charts, and identify technology at various stages of development.

Navy CPP focused on increasing standardized processes and defining metrics of success in FY09. A draft set of CPP guidelines has been initiated, which establishes funding and time limits for individual CPP projects, cost matching requirements, procedures for annual reviews of all on-going CPP projects, minimum reporting requirements for CPP firms and government technical managers, and requirements for execution of TTP/As. Metrics for the Navy's CPP are being developed based on actual implementation of the technology, the amount of non-SBIR investment received, and the percentage of projects that meet requirements set forth in the TTP/As.

### **3.3 Navy CPP Results Achieved**

The Navy approved a total of 31 projects in FY09 (see Appendix C), increasing the cumulative number of CPP projects since the inception of the pilot to 129 projects. Additionally, Navy reviewed all on-going CPP projects during FY09 and projects were assessed for adherence to technical, cost, and schedule requirements as well as continued transition potential. Those projects which showed significant deviations were required to submit updates to their Technology Transition Agreements and corrective action plans.

Cumulatively, the Navy has invested \$221.2M in SBIR funding to CPP projects, which includes funding for acceleration of transition efforts. Stakeholders have contributed \$408.8M, a rate of return of almost 1.8-to-1.

## **Appendix A: Air Force**

### **Small Business Innovation Research Commercialization Pilot Program FY 2009 Companies Approved for CPP**

<b>Company Name</b>	<b>Project Title/Contract Number</b>	<b>Topic #</b>
Amethyst Research, Inc	Passivation Technologies for Improved Operability in HgCdTe Focal Plane Arrays/ HQ0147-08-C-7904	MDA06-025
Centeye	Multiaperture Optical Systems FA8651-06-C-0127	AF05-147
Cornerstone Research Group, Inc	Reusable Shape Memory Mandrels FA8650-05-C-5300	AF04-137
Data Fusion and Neural Networks	Threat Detection, Validation, and Mitigation Tool for Counterspace and SSA Operations/ FA9453-07-C-0003	AF06-283
Decision Sciences, Inc	Prediction Methodology for Manufacturing Readiness Assessments FA8651-08-C-0144	AF071-162
Distributed Infinity, Inc.	Advanced Insider Threat Detection and Response/ FA8750-09-C-0047	AF073-033
Energetic Materials & Products, Inc.	Variable Effect Warhead for Tactical Missiles and Strike Weapons FA8651-07-C-0153	AF06-146
Galaxy Compound Semiconductors, Inc	Indium Antimonide Substrate Growth for Affordable Large-Format Mid-Infrared (IR) Imagers FA8718-07-C-0035	AF2006-212
Guided Systems Technologies, Inc.	Vision-Based Obstacle Avoidance Using Active Scene Segmentation N00014-07-C-0150	N04-178
Intelligent Optical Systems, Inc.	Accurate Damage Location and Identification in Composite Structures with Portable Unit/ FA8501-07-C-0025	AF06-355
IRFLex Corporation	Novel Fiber Laser for Direct Lasing in the Mid-Infrared/ FA9451-08-C-0066	AF071-011
Kinetic BEI, LLC	Power and Aeropropulsion FA8650-07-C-2735	AF06-174
Kinetic BEI, LLC	Propulsion for Miniature Munitions/ FA8651-08-C-0145	AF071-152
Light Curable Coatings	UV Curable Multifunctional Aircraft Protective Coating FA8650-06-C-5058	AF05-133
Light Curable Coatings	UV Curable Multifunctional Aircraft Protective Coating/ FA8650-06-C-5058	AF05-133



Company Name	Project Title/Contract Number	Topic #
Management Sciences, Inc.	Embeddable Programmable Instrumentation Circuit for Diagnostics and Prognostics Applications/ N68335-07-C-0175	N06-006
Millennium Space Systems	ESPA Orbital Maneuvering System FA9453-08-C-0107	AF071-284
Modus Operandi Inc.	Decision Explanation Engine Platform (DEEP)/ FA8750-07-C-0040	AF2006-077
Mustang Technology	Fuzing Optimized Guidance (FOG) FA8651-07-C-0150	AF06-133
Nokomis, Inc.	Remote-Controlled IED Detection Identification & Classification Algorithms (RADICAL)/ FA8650-08-C-1402	AF071-219
Nokomis, Inc.	Hiawatha Sensor System for Battle Damage Assessment of Directed Energy Weapons FA8650-08-C-1402	AF071-219
Numerica Corp.	Multi-Target Track and ID with Persistent Hyperspectral Data/ FA8650-09-C-1624	AF081-071
ODIS Inc.	Monolithic Infrared Pixel Structures Enabled by Thyristor-HFET EO Logic FA9453-09-C-0178	AF083-207
Quanttera	Space-Based Near IR Monolithic Tunable Laser/ FA8650-07-C-1023	AF05-233
SA Photonics	Modulated Pulsed Laser Sources for Imaging Lidars/ N68335-09-C-0009	N07-036
SET Associates Corporation	Real-time Aerial Video Exploitation for UAV Operations/ FA8650-06-C-1011	AF05-216
Technical Directions	Propulsion System for Joint Direct Attack Munition-Extended Range (JDAM-ER) FA8650-06-C-2675	AF05-192
Technical Directions	Turbogenerator for Directed Energy Applications/ Contract Number TBD	AF05-192
Ultra Communications	Ruggedized Fiber Optic Transceivers for Military Avionic, Missile & Space Applications/ FA9453-09-M-0060	AF083-152
Utopia Compression Corp	Mission Aware Topology Control (MAToC) for Airborne Network FA8750-09-C-0133	AF081-022

**Note:** Listed in alphabetical order and does not convey any prioritization of CPP projects.

<sup>1</sup> Additional information about Investor, Customer, or Fielded System is available on request. STTPs initiated in 2009 that later became inactive are not included.

**Appendix B: Army**  
**Small Business Innovation Research Commercialization Pilot Program**  
**FY 2009 Companies Approved for CPP**

<b>Company Name</b>	<b>Project Title/ Contract #</b>	<b>Topic #</b>
Adiabatics, Inc	Compact Turbochargers for High Power Density Diesel Engines/ W56HZV-06-C-0589	A05-237
Advanced Circulatory Systems, Inc	Inspiratory Impedance as a Treatment for Traumatic Brain Injury/ W81XWH-07-C-0018	A06-150
Digital Receiver Technology, Inc	Handheld Software Defined Radio Platform for Individual Direction Finding, Integrated Communications Equipment and Remote Unattended Ground Systems/ W15P7T-07-C-M011	A05-084
Eclipse Energy Systems, Inc	Flexible Transparent Conducting Films/ W911QX-06-C-0070	A04-044
Fairchild Imaging	Interline CCD for Low light Imagery/ W15P7T-05-C-P424	A04-116
GammaTech, Inc	Software Anti-Tamper for Real-Time Systems/ W31P4Q-05-C-R133	A04-160
Impact Technologies, LLC	Continuous Power Assurance for Rotorcraft/ W911W6-07-C-0044	A06-187
Imperium, Inc.	Diagnosis of Bone Fractures and Soft Tissue Injury with a Non-invasive Non-ionization Imaging Technique/ W81XWH-07-C-0021	A06-160
INTER Materials, LLC	Method of forming innovative flat ballistic materials into improved helmets/ W911QX-07-C-0033	A05-043
Intralix, Inc	Development of a phage-based technology for eliminating or significantly reducing contamination of fruits, vegetables, and red meat with E. coli O157:H7/ W911QY-07-C-0125	A06-178
Irvine Sensors Corporation	Image Intensifier Compatible Thermal Imaging System/ W15P7T-07-C-P006	A05-068
JMAR Technologies	Multipulse Agile Laser Source for Real-Time Spark Spectrochemical Hazard Analysis in the Field/ W911NF-06-C-0080	A05-028
Management Sciences	Condition Based Maintenance prognostics and diagnostics accessed wirelessly or on bussed circuit through use of Bayesian algorithm built into the backshell of electrical connector/ HQ0006-05-C-7252	MDA 03-029
MicroAssembly Technologies	Mass Fabrication of Hermetic MEMS Micro Detonators/ W15QKN-06-C-0212	A03-009
Milli Sensor Systems & Actuators	A Method of Improving Bias Stability of MEMS Inertial Instruments/ W911QY-06-C-0096	A05-192
Novawave Technologies	Real time ultrasensitive water supply system biosensor/ W9132T-06-C-0008	A03-130
Orbital Research, Inc	Low-Cost Miniature Control Actuation System for Gun-Fired Munitions/ WIKQKN-07-C- 0043	A06-050

<b>Company Name</b>	<b>Project Title/ Contract #</b>	<b>Topic #</b>
QPC Lasers, Inc	Spectrally Tailored High Efficiency Long Wave Pumps for Eye-Safe Solid-State Lasers/ W911QX-06-C-0044	A04-049
RE2	Low-Cost Miniature Control Actuation System for Gun-Fired Munitions/ W56HZV-06-C-0579	A05-221
Rini Technologies, Inc	Highly Efficient and Compact Microclimate Cooling System for Encapsulated Personal Protection Ensemble/ W911QY-05-C-0006	A02-196
TiaLinx	Wall Interrogator/ W15KQN-08-C-0247	A06-185
Touch of Life Technologies	Compartment Syndrome Simulator/ W81XWH-06-C-0036	A05-172
Triton Systems, Inc	Triton Composite Airdrop Platform (TCAP)/ W911QY-05-C-0005	A02-205
TRS Technologies, Inc	New Ferroelectric Components for FEG's (ferroelectric generators) and CDU's (capacitor discharge units)/ W9113M-06-C-0200	A05-209
VEXTEC Corporation	Vehicle Enterprise Computational Reliability Software (ECRS) / W56HZV-06-C-0585	A05-228

**Note:** Listed in alphabetical order and does not convey any prioritization of CPP projects.

**Appendix C: Navy**  
**Small Business Innovation Research Commercialization Pilot Program**  
**FY 2009 Companies Approved for CPP**

<b>Company Name</b>	<b>Project Title/ Contract #</b>	<b>Topic #</b>
Agile Delta, Inc.	Extending the Infosphere to Mobile Platforms Using Optimized COTS Technologies	AF03-094
Arete Assoc	Post Mission Analysis Stations	N96-150
ASSETT	SWIFT Tool	N05-162
Beacon Interactive Systems	Automated Generation of Maintenance Work Packages	N05-150
EM Photonics, Inc	Enhanced Realtime Millimeter Wave Imaging Using Hardware Acceleration	N06-079
Harmonia	Enhancing Total Ship Computing Environment Infrastructure thru UIML	N04-223
HYPRES, Inc.	Direct-conversion Architecture for Naval Multi-band Satellite Communication Systems	A04-133
HYPRES, Inc.	Superconductor SQIF Antenna for V/UHF Receivers	A05-107
Infrascan, Inc	Portable Near-Infrared Technology for Detection of Traumatic Brain Injuries in Operational Environments	OSD04-DH4
Inteligistics, Inc	RFID Supply Chain Management System for Naval Logistics	N04-180
KaZak Composites	VLS Composite Liners	N04-062
KOR Electronics	Advanced Techniques for Digital Radio Frequency Memories (DRFM)	N06-036
Lightening Packs, LLC	Harvesting Electric Power from Walking	N06-T026
Matech	SiNC Ceramic Fibers for JSF/VAATE Engine CMCs	N02-169
Mentis Sciences Inc	Composite Maritime Interdiction Mission Modules	MDA04-041
Mentis Sciences Inc	Composite Pressure Launch Tube & Pressure Vessel Implosion Design Tool	N03-080
Nanosonic, Inc	Highly Flame, Blast and Ballistic Resistant Hybrid Polysiloxane Coatings for U.S. Navy Ship Structures	N06-081

<b>Company Name</b>	<b>Project Title/ Contract #</b>	<b>Topic #</b>
NuParadigm Government Systems, Inc.	Secure Legacy Application Integration with NCES (SLAIN)	N05-082
Out of the Fog Research LLC	Extended Frequency Range Wide Band RF Distribution System for Shipboard Systems	N07-149
Pharad, LLC	Compact High-Frequency Antennas	N06-T032
Progeny Systems	Non-Hull Penetrating Hydrophone	N05-065
Questek	Improved Corrosion Resistant Materials	N03-167
Radiation Monitoring Devices, Inc.	Circuit Card Analyzer	N03-158
Real-Time Innovations	Integrated Network MiddleWare	N03-087
Rini Technologies	Free Diver Heating Systems	N06-187
SatCon Applied Tech	NLOS-LS Mission Module AC/DC Power Converter	N08-181
Scalable Network Technologies, Inc.	Scalable JTRS Modeling & Evaluation Environment (JMEE)	A04-132
Tiax LLC	Solid State, Small Diameter Heading Sensor	A05-213
TPL, Inc	High Power Density Capacitors for High Temperature Navy Applications	N04-125
Trident Systems Incorporated	Joint Collaboration Gateway (JCG)	AF03-079
Variation Reduction Solutions Inc.	Inlet Duct Robotic Drilling	AF06-011

**Note:** Projects are listed in alphabetical order and are not intended to convey CPP priorities.