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DHS S&T Mission

Strengthen America's security and resiliency by providing knowledge products and innovative technology solutions for the Homeland Security Enterprise



Under Secretary for S&T
Deputy Under Secretary

Chief Scientist

Chief of Staff

Knowledge Management Office

Office of Corporate Communications

Executive Secretary

Associate General Counsel

Director of Finance and Budget

Director of Administration and Support

Director of Support to the Homeland Security Enterprise and First Responders

Director of Homeland Security Advanced Research Projects Agency

Director of Acquisition Support and Operations Analysis

Director of Research & Development Partnerships

Office of Interoperability and Compatibility

Technology Clearinghouse/R-Tech

NUSTL

Borders & Maritime Security Division

Chemical/Biological Defense Division

Cyber Security Division

Explosives Division

Human Factors/Behavioral Sciences Division

Infrastructure Protection & Disaster Management Division

Capstone Analysis & Requirements Office

HSSAI SEDI

Office of Systems Engineering

Test & Evaluation and Standards Office

TSL

Interagency Office

International Cooperative Programs Office

Office of National Labs

PIADC NBACC NBAF CSAC

Office of Public-Private Partnerships

SBIR LRBA Safety Act Office

Office of University Programs

HSSTAC Executive Director & NSTC Liaison



HSARPA



The Homeland Security Act of 2002 established the Homeland Security Advanced Research Projects Agency (HSARPA) to support basic and applied homeland security research to:

- promote revolutionary changes in technologies;
- advance the development, testing and evaluation;
- deploy of critical homeland security technologies; and
- accelerate the prototyping of technologies
that would address homeland security vulnerabilities.

Topical Divisions:

Borders and Maritime Security

Cyber Security

Explosives

Chemical and Biological Defense

Human Factors/Behavioral Sciences

Infrastructure Protection & Disaster Management

Apex Programs:

STORE/USSS, STC/CBP



HSARPA Mission



- Protect America and save money
- Be an information and technology clearinghouse for homeland security enterprise
 - Best practices
 - Technologies
- Impact operations across the homeland security enterprise



HSARPA Evolution



- HSARPA evolving
 - Technology development and integration
 - Less focus on basic research
- Understand and define Operational Context
 - Develop systems analysis for requirements
 - Identify technology opportunities
- Develop empirical metrics for programs
 - Efficiency Impact
 - Capability Impact
 - Return on Investment
- Transition products to the field – transition = operational use + ownership
- Operational Pilots – S&T will fund through deployment

Operational Focus	Scoring Guidelines			
	1	4	7	10
Systems Analysis: How well does the project's product(s) align with a customer's existing operational context/concept of use or an alternative that is agreeable to the customer?	Many Questions – Solution seems decoupled from the operational context or concept of use	Some Concerns – Solution clearly could play a role in the operational context or concept of use, but questions remain about exactly how it will enable operations	Good Fit – Solution is an integral part of the operational context/concept of use	Key Enabler – Solution is a central component of the operational context/concept of use – without this effort it is unlikely the concept of use can be achieved
Customer Buy-in: Have the project objectives been developed through close consultation with appropriate decision authorities?	Many Unknowns – Project objectives remain in flux	Some Uncertainty – Customer representative and S&T have agreed to and documented project objectives	Mostly Clear – Customer representative with decision authority and S&T have agreed to and documented project objectives	Solid – Decision authority involvement and formal transition agreement in place

Innovation				
Efficiency: What level of savings can be achieved by this project with respect to the customer's operations?	Unknown/None – Too many factors to assess accurately; no confidence in savings estimate(s); no cost savings anticipated	Limited – Savings may be possible, but they are of limited scope or the path to their achievement is unclear	Meaningful – Savings will definitely result from this effort and their magnitude will be meaningful within the context of the customer's operations	Significant Impact – The projected savings are such that the nature of the customer's operations will be dramatically streamlined (changed)
Capability: To what extent does this project provide risk or threat reduction and/or improved fidelity, performance, etc.?	Unknown/None – Does not meaningfully or measurably improve the existing operations	Incremental Improvement – Measurable and meaningful improvement to operations	Moderate Improvement – The nature of the improvement significantly enhances operations	"Game Changer" – The capability fielded is so advanced it effectively eliminates the need for further work in this area (for the immediate future)
Novel Approach: Does the project attempt to realize its objectives in a way that others have not previously considered or exploited?	No – Follows a similar pattern of thinking used in the past; tried and true technologies/methods	Next Logical Step – Uses an existing approach, but with new technologies/methods or uses existing technologies/methods in a new application	Fresh Perspective – Incorporates significant novel thinking in the utilization and exploitation of technology/methods or integrates existing technologies/methods to create a new capability	Revolutionary – Significant departure from prior utilization of technology/methods; has the potential to revolutionize the field
Technical Feasibility: Is this a feasible project given the current state of science/technology/research?	Very Difficult – Many unknowns	Difficult – Some significant questions exist	Achievable – Modest technical uncertainty	Sure Thing – Very high probability of technical success

Note: Values can be assigned between descriptor numerical scores, i.e., 2,3,5,6,8,9

Partnerships	Scoring Guidelines			
	1	4	7	10
Resource Leverage: What level of commitment exists between the project team and the target component or customer? (Resource leverage may also be through interagency, international, academia and/or industry relationships)	None/Minimal – Component/customer is aware of the project, but is uninvolved	Modest Commitment – Component/customer is in active discussions with the project team, but not currently providing resource support	Strong Commitment – Component/customer is actively working with S&T to plan for transition and is providing significant in-kind ⁽¹⁾ and/or monetary support	Joint Effort – Over half of the project funds are provided by the component/customer
Foraging: Does the project exploit existing technology or research, and/or new or existing partnerships (interagency, international, academia, industry) to minimize time and expense?	Questions Exist – No indication requisite due diligence has been performed	No Opportunity – Due diligence complete, but no opportunities identified	Verified Opportunity – Project team has identified existing technology , research, and/or partnerships that can be used or re-purposed to directly facilitate a cost and time effective solution	Exploitation Underway – Project team has obtained access to existing technology research, and/or partnerships that will directly facilitate a cost and time effective solution
Project Quality				
Project Clarity: How well is the project described, laid-out – is it clear what the team will do? Is the problem well defined and the approach clear? Has a letter of intent or TTA been obtained?	Lacks Clarity – Difficult to know what will result	Some Confusion – Documentation is incomplete or poorly detailed; many uncertainties	Straightforward – Well documented project, most aspects can be easily understood	Transparent – Project documentation is clear and easily understood – effort “makes sense”
Cost Realism: Is the cost projection credible?	Insufficient Information – Insufficient information provided to make an assessment	Ballpark – Projection is probably in the “ballpark”, but could benefit from greater detail	Substantiated – Project team has made an obvious attempt to build a detailed cost analysis	On the Mark – Very high credibility, robust analysis, projection makes sense
Timeline: When will the project achieve either an efficiency or capability improvement, as defined on the previous page, as part of normal operations? (Ex: hand over of prototype for operational use would qualify) or When will the 1 st demonstration of the capability/efficiency be observed in an operational context? ⁽²⁾	Far-term (Five or more years)	Mid-term (3-4 years)	Near-term (1-2 years)	Imminent (Less than a year)
Transition Likelihood: Is there a clear path/mechanisms to enable transition/commercialization? Customer readiness? Are there any secondary issues related to the concept of use, pronency, budgeting, affordability, regulatory or statutory realities, or business value?	Unlikely – Transition and use of results is unlikely	Somewhat Likely – Much more has to happen to enable transition and use of results	Likely – Most obstacles to transition and use of results have been overcome and/or project is in pilot	Very Likely – Customer has budgeted for technology and commercialization plan is in place and being executed

Notes: 1) In-kind support defined as commitment of personnel, facilities, and/or funding for demonstrations that are representative of at least 10% of project cost; 2) The Timeline criteria is scored based on the categories provided; numerical scores are not provided for this criteria. All other criteria are assessed with numerical scores and can be assigned between descriptor numerical scores, i.e., 2,3,5,6,8,9



What does this mean for Small Business



- Impact on SBIRs
 - Focus must be on transitioning products to use
 - Commercialization plans
 - Cost-sharing
 - Understanding the market and developing partnerships
 - Operating in a different world with extremely constrained budgets



Comprehensive National Cybersecurity Initiative (CNCI)

Focus Area 1

Establish a front line of defense

Reduce the Number of Trusted Internet Connections

Deploy Passive Sensors Across Federal Systems

Pursue Deployment of Automated Defense Systems

Coordinate and Redirect R&D Efforts

Focus Area 2

Resolve to secure cyberspace / set conditions for long-term success

Connect Current Centers to Enhance Situational Awareness

Develop Gov't-wide Counterintelligence Plan for Cyber

Increase Security of the Classified Networks

Expand Education

Focus Area 3

Shape future environment / secure U.S. advantage / address new threats

Define and Develop Enduring Leap Ahead Technologies, Strategies & Programs

Define and Develop Enduring Deterrence Strategies & Programs

Manage Global Supply Chain Risk

Cyber Security in Critical Infrastructure Domains



Homeland Security

Science and Technology