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# HSARPA Overview

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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*

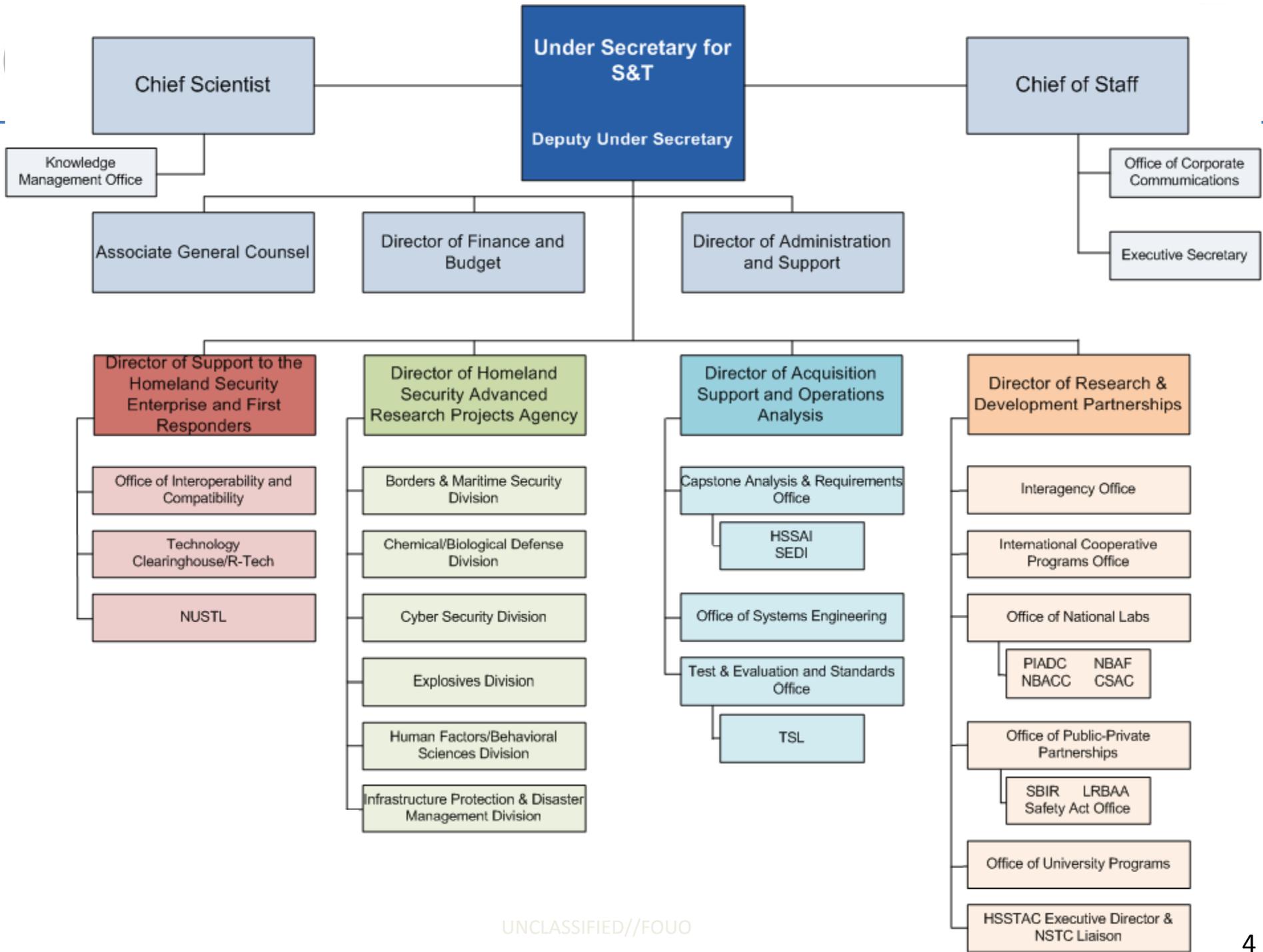




# Goal 1: Transition to Use

## Rapidly develop and deliver knowledge, analyses, and innovative solutions that advance the mission of the Department

- Provide knowledge, technologies, and science-based solutions that are integrated into homeland security operations, employing 24-36 month innovation cycles from project inception through operational testing
- Strengthen relationships with DHS components to better
- Become “best-in-class” at technology foraging – find and use what’s out there; encourage and enable multidisciplinary teams
- Focus on rigorous project selection and regular review of the entire R&D portfolio
- Implement processes that strengthen project management, evaluation, and accountability within the Directorate



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# HSARPA Technical Divisions



- **Borders and Maritime Security Division** - Prevent contraband, criminals and terrorists from entering the U.S. while permitting the lawful flow of commerce and visitors



- **Chemical/Biological Defense Division** - Detect, protect against, respond to, and recover from potential biological or chemical events



- **Cyber Security Division** - Create a safe, secure and resilient cyber environment



- **Explosives Division** - Detect, prevent and mitigate explosives attacks against people and infrastructure



- **Human Factors/Behavioral Sciences Division** - Identify and analyze threats, enhance societal resilience, and integrate human capabilities in technology development



- **Infrastructure Protection & Disaster Management Division** - Strengthen situational awareness, emergency response capabilities and critical infrastructure protection



# HSARPA Evolution

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- 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



# HSARPA Mission

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- 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

 <b>Operational Focus</b>	Scoring Guidelines			
	1	4	7	10
<b>Systems Analysis:</b> 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?	<b>Many Questions</b> – Solution seems decoupled from the operational context or concept of use	<b>Some Concerns</b> – Solution clearly could play a role in the operational context or concept of use, but questions remain about exactly how it will enable operations	<b>Good Fit</b> – Solution is an integral part of the operational context/concept of use	<b>Key Enabler</b> – 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
<b>Customer Buy-in:</b> Have the project objectives been developed through close consultation with appropriate decision authorities?	<b>Many Unknowns</b> – Project objectives remain in flux	<b>Some Uncertainty</b> – Customer representative and S&T have agreed to and documented project objectives	<b>Mostly Clear</b> – Customer representative with decision authority and S&T have agreed to and documented project objectives	<b>Solid</b> – Decision authority involvement and formal transition agreement in place

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

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

 <b>Partnerships</b>	Scoring Guidelines			
	1	4	7	10
<b>Resource:</b> 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)	<b>None/Minimal</b> – Component/customer is aware of the project, but is uninvolved	<b>Modest Commitment</b> – Component/customer is in active discussions with the project team, but not currently providing resource support	<b>Strong Commitment</b> – Component/customer is actively working with S&T to plan for transition and is providing significant in-kind <sup>(1)</sup> and/or monetary support	<b>Joint Effort</b> – Over half of the project funds are provided by the component/customer
<b>Foraging:</b> Does the project exploit existing technology or research, and/or new or existing partnerships (interagency, international, academia, industry) to minimize time and expense?	<b>Questions Exist</b> – No indication requisite due diligence has been performed	<b>No Opportunity</b> – Due diligence complete, but no opportunities identified	<b>Verified Opportunity</b> – 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	<b>Exploitation Underway</b> – Project team has obtained access to existing technology research, and/or partnerships that will directly facilitate a cost and time effective solution
Project Quality				
<b>Project Clarity:</b> 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?	<b>Lacks Clarity</b> – Difficult to know what will result	<b>Some Confusion</b> – Documentation is incomplete or poorly detailed; many uncertainties	<b>Straightforward</b> – Well documented project, most aspects can be easily understood	<b>Transparent</b> – Project documentation is clear and easily understood – effort “makes sense”
<b>Cost Realism:</b> Is the cost projection credible?	<b>Insufficient Information</b> – Insufficient information provided to make an assessment	<b>Ballpark</b> – Projection is probably in the “ballpark”, but could benefit from greater detail	<b>Substantiated</b> – Project team has made an obvious attempt to build a detailed cost analysis	<b>On the Mark</b> – Very high credibility, robust analysis, projection makes sense
<b>Timeline:</b> 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) <b>or</b> When will the 1 <sup>st</sup> demonstration of the capability/efficiency be observed in an operational context? <sup>(2)</sup>	<b>Far-term</b> (Five or more years)	<b>Mid-term</b> ( 3-4 years)	<b>Near-term</b> (1-2 years)	<b>Imminent</b> (Less than a year)
<b>Transition Likelihood:</b> 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?	<b>Unlikely</b> – Transition and use of results is unlikely	<b>Somewhat Likely</b> – Much more has to happen to enable transition and use of results	<b>Likely</b> – Most obstacles to transition and use of results have been overcome and/or project is in pilot	<b>Very Likely</b> – 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 Performers

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- Impact on Performers
  - Focus must be on transitioning products to use
    - Commercialization plans
    - Cost-sharing
    - Understanding the market and developing partnerships
  - Must understand the operational context working within
    - Be able to calculate efficiency and capability impact
    - Understand, calculate and defend ROI
  - Operating in a different world with extremely constrained budgets



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# Homeland Security

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Science and Technology