



# -- Human Systems Overview --

## Community of Interest & Priority Steering Council

**Mr. Jack Blackhurst**

Chair

Human Systems Community of Interest

**Dr. John Tangney**

Chair

Human Systems Priority Steering Council

**National Defense Industrial Association  
Human Systems Division Workshop**

**11 Sept 2012**



# Community of Interest Topics



- **NDIA Human Systems Division**
- **Community of Interest Structure**
- **FY12 Accomplishments/FY13 Plans**
- **Defense Innovation Marketplace Demo**



# New NDIA Division HUMAN SYSTEMS



## *Mission*

To promote the exchange of technical information and discussions between government, industry, and academia, and the expansion of research and development in areas related to the human as a system whose performance must be integrated into any system of systems

## *Objectives*

- Advocate human-centered research and the integration of cognitive and biological technologies
- Promote discussions to make the “human factor” a top priority in Research, Development, Test and Evaluation (RDT&E)
- Conduct studies and prepare reports in response to requests from the DoD HS Community of Interest (Col)
- Advocate, lead, and influence increased discussion and research on the elements of human-system integration (HSI) domains

Chair: Dr. Chris Nemeth, Applied Research Associates, Inc



# Human Systems Community of Interest



## Col Charter

**Provide a framework for DoD Components DoD Executives, Scientists, Engineers, and Human Systems Integration Practitioners to:**

- **Share information, ideas, and best practices**
- **Identify opportunities**
- **Measure progress**
- **Jointly plan and coordinate programs across DoD**
- **Report on state of the health of the Human Systems Defense Technology Area and related Science and Technology (S&T)**



# Human Systems COI

## Participating Organizations



- **Army Research Laboratory – Human Research & Engineering Directorate**
  - **Army Research Institute for the Behavioral and Social Sciences**
  - **Army – MANPRINT Office**
  - **Natick Soldier Research, Development, and Engineering System Center**
  - **US Army Medical Research & Materiel Command**
  - **Office of Naval Research – Warfighter Performance Department**
  - **Navy – Human System Integration Engineering**
  - **Navy – Naval Air Systems Command**
  - **Navy Medical Support Command**
  - **Air Force Research Laboratory – 711 Human Performance Wing**
  - **Air Force Human System Integration Office**
  - **Air Force Medical Service**
  - **ASD(R&E) – Human Performance, Training, & BioSystems**
  - **ASD(HA) – Force Protection & Readiness**
  - **NATO Human Factors & Medicine Panel\***
  - **DoD Human Factors Engineering Technology Advisor Group\***
  - **Defense Threat Reduction Agency – Chemical/Biological Technologies\***
- \* increasing linkage/participation



# Human Systems Operational Capability Scope



JWSTP - Joint Warfighting S&T Plan



# Human Systems Science & Technology Scope



## System Interfaces

- Human-Machine Interfaces
- Human cognitive process modeling
- Decision-making models
- Human state modeling
- Applied Neuroscience
- Trust
- Metrics & measures of effectiveness



## Personnel & Training

- Force management & modeling
- Selection & Classification
- Theory of learning
- Adaptive, tailored instruction
- Live, virtual, constructive sims
- Realistic immersive training
- Training methods, tech, & media
- Education & training strategies
- Innovative leader development
- Metrics & measures of effectiveness



## Social & Cultural Understanding

- Cultural situation awareness
- Socio-cultural models & synthetic entities
- Socio-cultural data in denied areas
- Social network analysis
- Building partnerships
- Metrics & measures of effectiveness



## Protection & Sustainment

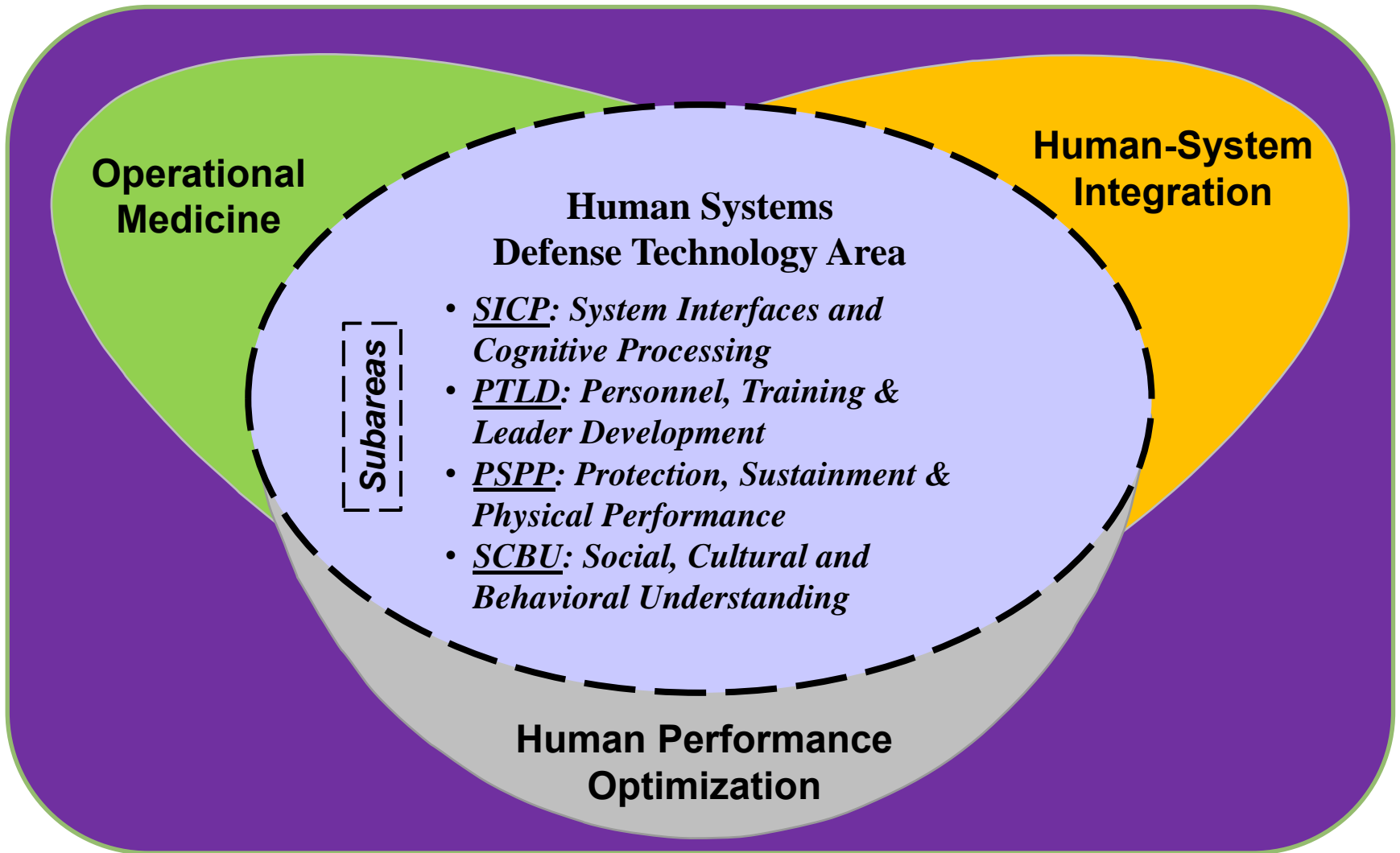
- Extreme environment protection
- Combat clothing & protective equipment
- Extended combat rations & field feeding equipment
- Physical aiding
- Performance enhancement
- Vehicle escape & crash safety
- Survival & rescue
- Aerial delivery
- Warrior-System integration
- Metrics & measures of effectiveness





# Human Systems COI

## Broad Elements







# Community of Interest Topics



- NDIA Human Systems Division
- Community of Interest Structure
- **FY12 Accomplishments/FY13 Plans**
- Defense Innovation Marketplace Demo



# FY12 Accomplishments/FY13 Plans



## FY12 Accomplishments

- Participate in technical conferences & workshops
  - ☑ Human-Centric Autonomy Workshop (September 2011)
  - ☑ Human Augmentation Workshop (March 2012)
  - ☑ HFETAG (April 2012)
  - ☑ NDIA Workshop (September 2012)
- Support PSC activities

## FY13 Plans

- Participate in technical conferences & workshops
  - I/ITSEC (December 2012)
  - IR&D Technical Interchange (Spring 2013)
  - NDIA Conference (2013)
- Operationalize initial Human Systems Marketplace



# Community of Interest Topics



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- **Defense Innovation Marketplace Demo**



# Defense Innovation Marketplace



- **Centralized online resource to better connect industry with government customers and invigorate innovation**
- **Industry: Place to learn about DoD investment priorities and capability needs**
- **Government: Provide new search tools to assess and leverage industry technology projects**

[www.DefenseInnovationMarketplace.mil](http://www.DefenseInnovationMarketplace.mil)



# Defense Innovation Marketplace Home Page



## DEFENSE INNOVATION MARKETPLACE



And Other DoD Agencies

HOME

RESOURCES

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## Connecting Industry with Government Customers

The Defense Innovation Marketplace is a centralized online resource to better connect industry with government customers to invigorate innovation.

**For Industry**, the Marketplace is the place to learn about Department of Defense investment priorities and capability needs, and comply with the new Defense Federal Acquisition Supplement (DFARS) rule.

**For Government**, the Marketplace will provide new search tools to assess and then leverage industry technology projects for current and future programs.

### NEW IN THE MARKETPLACE

#### S&T Strategic Documents

- DoD Mobile Device Strategy
- Science and Technology Priorities for the FY 2014 Budget
- Sailing the Great Green Fleet
- 21st Century Naval Amphibious Capability

#### Doing Business with DoD

- Air Force Information
- Other DoD Agencies
- Armed Aerial Scout (AAS) Industry Day
- AAS RFI Day Q&A from Industry
- Navy Information

More...

#### News & Events

- Rapid Innovation Fund 2011 Update
- 2012 SWE S&T Industry Day
- Expansion of Voluntary Cybersecurity Information Sharing Activities

More...

Updated July 5

### Resources

Useful DoD and Service Information for business and program planning [here](#)

### Industry

Market Your Innovation to DoD Customers [here](#)

### Government

Find Details about Industry's Innovation Projects [here](#)



Click Here to sign up for RSS feeds



# Defense Innovation Marketplace

## DoD Sight Picture



The Defense Innovation Marketplace is your one-stop source for Department of Defense (DoD) science and technology (S&T) planning, acquisition resources, funding and financial information. Please let us know what other Department materials would be useful to post on the Marketplace so that industry can plan its IR&D Investments at [comments@defenseinnovationmarketplace.mil](mailto:comments@defenseinnovationmarketplace.mil).

[Subscribe to RSS feed updates](#)

### Strategic S&T Overview

#### US S&T Priorities

- Science and Technology Priorities for the FY 2014 Budget
- Science, Technology & Innovation For National Security

#### S&T FY13 Testimony

- Assistant Secretary of Defense for Research and Engineering (ASD(R&E))
- Army
- Navy
- Air Force
- DARPA

#### Other Recent Testimonies

- ASD(R&E) Cybersecurity
- DARPA Cybersecurity
- ASD(R&E) Laboratories

#### Service S&T Priorities

- DoD Defense Budget Priorities
- Army S&T Strategic Direction
- Naval S&T Strategic Plan
- USAF S&T Strategic Plan
- Missile Defense Program Strategic Plan
- US Special Operations Command S&T Strategic Plan
- Unmanned Systems Integrated Roadmap
- Strategic Direction to the Joint Forces

#### S&T Emphasis Area Roadmaps

- Autonomy
- Cyber
- Countering Weapons of Mass Destruction
- Data-to-Decisions
- Engineered Resilient Systems (ERS)
- Electronic Warfare / Electronic Protection
- Human Systems

#### General Service Strategy Documents

- Sailing the Great Green Fleet
- 21st Century Naval Amphibious Capability
- 2012 Army Strategic Planning Guidance

### Doing Business with DoD

#### Resources by Organization

- Army
- Navy
- Air Force
- Other DoD Agencies

#### Rapid Innovation Fund

- 2011 Update
- 2012 Fact Sheet

#### Small Business Innovation Research (SBIR) Awards

- DoD SBIR Awards
- Army SBIR Website
- Navy SBIR Website
- Air Force SBIR Website
- DARPA SBIR Website

#### Industry Day Presentations

Industry Days are held to inform industry about opportunities to work with the Department of Defense.

##### Army

- Armed Aerial Scout (AAS) Industry Day (4/24/2012)
- AAS RFI Day Non-Proprietary Questions from Industry (4/24/2012)
- AAS RFI Synopsis Description (4/24/2012)
- Armored Multi-Purpose Vehicle (AMPV) (4/24/2012)

##### Navy

- Maritime Tactical Command and Control (11/9/2011)
- Air Vehicle Modification and Instrumentation (11/9/2011)
- Shipboard Automated Landing Technology Innovation Program (11/2/2011)
- Demonstration System Development for Advanced Shipboard Desalination FNC (3/31/2011)
- ONR Electronic Warfare S&T (11/9/2011)

##### USMC

- Marine Personnel Carrier (MPC) SOW
- MPC Technology Readiness Levels

#### [Featured Solicitations](#)

- 2012 Big Data Solicitations
- Current S&T Emphasis Area Solicitations

#### Other Open Solicitations

##### Army BAAs

- Army Engineer Research and Development Center
- Army Research Laboratory/Army Research Office

##### Navy BAAS

- Naval Research Laboratory Contracting Division
- Office of Naval Research

##### Air Force BAAs

- Air Force Office of Scientific Research
- Air Force Research Laboratory

##### DoD Agency BAAs

- Defense Threat Reduction Agency
- Defense Advanced Research Projects Agency
- Missile Defense Agency
- Joint Program Executive Office for Chemical & Biological Defense

##### Other Government Funding Sources

- Federal Business Opportunities

#### Request For Information (RFIs)

- Family of Advanced Beyond-Line-of-Sight Terminals (Air Force)
- Medium Range Precision Strike System (SOCOM)
- Semi-autonomous Robot (ARMY)
- Defense Acquisition Challenge (ASD(R&E))
- Compact Rep-Rate Pulsed Power for Driving Railguns (NAVY)

#### [DoD Licensable Patents](#)

DoD laboratories have created thousands of patents for technologies that can be licensed for commercial products and manufacturing processes.

- [Browse DoD Patents](#)



# Defense Innovation Marketplace

## Example: AF Sight Picture



HOME RESOURCES FAQs NEWS ABOUT IR&D CONTACT US

Home > Industry Resources > Air Force Resources >

### Air Force Resources

#### Testimony

- [Fiscal Year 2013 Air Force Science and Technology \(Status and Health of Air Force Labs\)](#)

#### S&T Priorities and Strategic Documents

- [USAF S&T Strategic Plan](#)
- [Annual Aviation Inventory and Funding Plan FY2013-2042](#)
- [USAF Force Structure Changes](#)

#### Doing Business with the Air Force

- [AFRL Organizational Chart](#)
- [AFRL Acronyms](#)
- [AFRL Employment](#)
- [AFRL and Historically Black Colleges and Universities](#)
- [AFRL Personnel Demonstration Project](#)
- [Det 1 AFRL/PK \(Contracting for Wright-Patt Tech. Directorates\)](#)
- [Air Force Small Business Innovation Research & Small Business Technology Transfer \(SBIR & STTR\)](#)
- [DoD Non-Lethal Weapons Program](#)
- [Headquarters Contracting and AFRL-wide Business Opportunities](#)
- [High Performance Computing](#)
- [Independent Research & Development \(IR&D\)](#)
- [Partnering with AFRL](#)
- [Small Business](#)
- [SBIR Fact Sheet](#)
- [Technology Transfer](#)

#### Industry Day Presentations

- [Three-Dimensional Expeditionary Long-Range Radar \(3DELRR\)](#)

#### Requests for Information

- [Family of Advanced Beyond-Line-of-Sight Terminals \(Air Force\)](#)

#### Air Force Labs

##### Air Force Research Laboratory: Technical Directorates

- [711th Human Performance Wing \(711 HPW\)](#)
- [Air Vehicles \(RB\)](#)
- [Air Force Office of Scientific Research \(AFOSR\)](#)
- [Directed Energy \(RD\)](#)
- [Information \(RI\)](#)
- [Materials and Manufacturing \(RX\)](#)
- [Munitions \(RW\)](#)
- [Propulsion \(RZ\)](#)
- [Sensors \(RY\)](#)
- [Space Vehicles \(RV\)](#)

### More Resources

- [All Industry Resources](#)
- [2012 Big Data Solicitations](#)
- [Current S&T Emphasis Area Solicitations](#)
- [Army Resources](#)
- [Navy Resources](#)
- [Other DoD Resources](#)



# Defense Innovation Marketplace Human Systems Pilot Program Home Page



## DEFENSE INNOVATION MARKETPLACE



And Other DoD Agencies

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- ABOUT IR&D
- CONTACT US

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**For Government**, the Marketplace will provide new search tools to assess and then leverage industry technology projects for current and future programs.

### NEW IN THE MARKETPLACE

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- Active Denial Technology (ADT)
- Joint Non-Lethal Weapons Program Overview
- DoD Mobile Device Strategy
- Science and Technology Priorities for the FY 2014 Budget
- Sailing the Great Green Fleet
- Document X
- Document Y

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- Document Y

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- Document Y
- Document X
- Document Y

[More...](#)

*Updated July 12*

**Human Systems Technologies Interchange with Government [here](#)**

**Resources**  
DoD Information for Business & Program Planning [here](#)

**Industry**  
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# HS COI Pilot Program Plan

## Goals



- **Make the Defense Innovation Marketplace a robust information environment for Human Systems Gov't, Industry, and Academia interaction**
- **Leverage the Marketplace to provide needed IR&D Program insight on what industry can do to address important DoD needs at a Human Systems COI level**
  - Want enough information to get Human Systems health status
  - Includes all investment types; from gov't and industry we need, programs, budget and maturity.



# HS COI Pilot Program Plan

## Leveraging the Marketplace



**Fall 2012:** Human Systems COI will use the Marketplace to provide detailed information to industry on technical interest areas

- **Industry** will have opportunity to submit information on their R&D investments in Human Systems through the Marketplace. *(Information will be protected and available only to select Government personnel)*
- **HS COI** will use this information to determine opportunities to accelerate and strengthen technical development.
- **HS COI** will invite firms to participate in a **Spring 2013** collaborative technology technical interchange.

**GOAL:** Improve the strategic placement of CRAD investments to accelerate and strengthen technology development and to support future acquisition programs through more efficient communication and planning

HOME INDUSTRY RESOURCES FAQs NEWS ABOUT IR&D CONTACT US

*If you have insight or capabilities in one of these areas, we ask that you submit your ideas.*

<b>System Interfaces</b> Strategic Decisionmaking Tactical Decision Support Autonomous vehicle control Cyber Operations & Trust Adaptive Planning	<b>Personnel &amp; Training</b> Adaptive, tailored instruction Live, Virtual, Constructive simulation Realistic immersive training Train Partner State Forces
<b>Social &amp; Cultural Understanding</b> Information sharing w/ partners Cultural situation awareness Cultural & language expertise Social Network Analysis Cultural impact of actions	<b>Protection &amp; Sustainment</b> Extreme environment protection Physical Performance Enhancement Autonomous augmentation Physical Aiding Extended Combat Rations

Ideas further.

Submit your Human Systems Project Information [Here](#)



**DEVELOPMENTAL PLANNING**

[www.DefenseInnovationMarketplace.mil](http://www.DefenseInnovationMarketplace.mil)



# Defense Innovation Marketplace

## Human Systems Pilot Program Demo



- **Demonstrate how to navigate several website capabilities**
  - Overall Marketplace design and potential data
  - Access our Human Systems Col data and related business opportunities
  - Walk through questions aimed at aligning IR&D projects to our Col needs
- **Computers manned by DTIC and ASD (R&E) reps today only**
- **Ask questions and give feedback!**
- **Available soon - check Defense Innovation Marketplace and FEDBIZOPPS**



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