

Description

Human Systems is comprised of four Thrust Areas:

- Personalized Assessment, Education, & Training
- Human Aspects of Operations in Military Environments
- Protection, Sustainment & Warfighter Performance
- System Interfaces & Cognitive Processes

The vision of the Human Systems COI is to provide innovative human science solutions to enhance the readiness and reduce the cost of our All Volunteer Force

COI end states include improved readiness by enhancing mission capability and achieving affordability by reducing costs

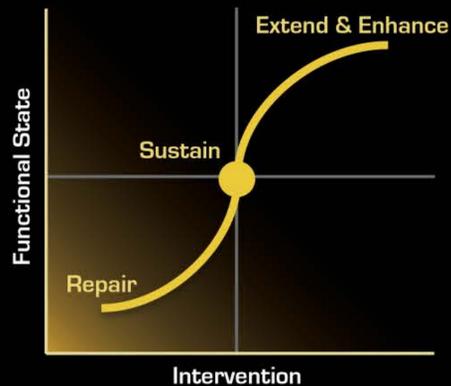
The Human Systems COI enhances mission capability by:

- Out-thinking the adversary
- Designing human-factored interfaces
- Understanding Political, Military, Economic, Social, Information, Infrastructure (PMESII) battle space
- Optimizing body-worn equipment systems

The Human Systems COI reduces cost due to:

- Attrition / injuries / death
- Manpower needs per system
- Fog of war
- System burden on human performance

Conceptualizing the Human System



Membership

STEERING GROUP

Dr. Michelle Sams (Army)
Dr. Patrick Mason (OSD)
Dr. Laurel Allender (Army)
Dr. Patrick Baker (Army)
Dr. John Tangney (Navy)
Dr. John Pazik (USMC)
Dr. Kevin Geiss (AF)

WORKING GROUP

Mr. Maris Vikmanis (AF)
CDR Joseph Cohn (OSD)
Dr. Bindu Nair (OSD)
Ms. Hannah Freeman (OSD)
Ms. Mary Ellen Pascoe (OSD)
Mr. John Lockett (Army)
Ms. Karen Burke (Army)

Ms. Rose Guerra (Army)
Ms. Josephine Wojciechowski (Army)
LCDR Brent Olde (Navy)
Dr. Paul Chatelier (Navy)
Mr. Alan Livada (AF)

THRUST AREA GROUP LEADERS

Personalized Assessment, Education & Training Dr. Ray Perez (Navy) Dr. Jen Tucker (Army) Mr. Rodney Long (Army) Dr. Wink Bennett (AF)	System Interfaces & Cognitive Processes Dr. Todd Nelson (AF) Dr. Susan Hill (Army) In Transition (Navy)	Protection, Sustainment & Warfighter Performance Dr. Mike LaFiandra (Army) Dr. Tyler Brown (Army) Dr. Peter Squire (Navy) Ms. Stephanie Miller (AF)	Human Aspects of Operations in Military Environments Dr. Liz Bowman (Army) Dr. Rebecca Goolsby (Navy) Dr. Geoffrey Barbier (AF)
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HUMAN SYSTEMS COI

Challenges, Opportunities, and Future Efforts

Thrust Areas

Personalized Assessment, Education, & Training

OVERVIEW

- Develop selection measures and instruments
- Innovative Leader Development
- Training Methods, Technology, and Media
- Joint Interoperable Training

OBJECTIVES

- Provide innovative human science solutions to enhance the readiness and reduce the cost of our All Volunteer Force
- Integrated measures and adaptive testing for more precise assessment of individual potential
- Competency-based training for full spectrum of missions with personalized, adaptive, with rapid updates

CHALLENGES

- Integrated measures and adaptive testing for more precise assessment of individual potential
- Adaptive training for accelerated learning

OPPORTUNITIES

- Increase predictive capability of selection screens to reduce personnel life-cycle costs
- Personalized training to accelerate proficiency

System Interfaces & Cognitive Processes

OVERVIEW

- Human-Machine Teaming
- Intelligent, Adaptive Aiding
- Intuitive Interaction

OBJECTIVES

- Allow Warfighters to focus on their primary mission, not on operating their tools
- Develop Human-technology interactions with interfaces that support bi-directional communication, learn with experience, and do not require specialized operator selection and training

CHALLENGES

- Real-time physical and cognitive state assessment
- Determining when to adapt automation and interface modalities
- Natural language and gesture interfaces for human-machine interaction

OPPORTUNITIES

- Increase predictive capability of selection screens to reduce personnel life-cycle costs
- Personalized training to accelerate proficiency

Protection, Sustainment & Warfighter Performance

OVERVIEW

- Understanding Critical Stressors
- Developing Operationally Relevant Metrics
- Understanding Individual Differences

OBJECTIVES

- Understand the dimensions that affect human performance
- Understand the trade-offs of new capabilities
- Design for and exploit individual differences

CHALLENGES

- Define critical stressors that influence performance
- Understand ways of mitigating the effect of these stressors
- Develop operational measurements of performance
- Define and validate operationally relevant test capabilities, metrics and measurement methods

OPPORTUNITIES

- Noninvasive persistent sensors and faster, lighter-weight computing for quantifying Warfighter performance in operational environments
- Enhance Warfighter performance through technologies such as those being developed in DARPA's Warrior Web, Air Force's BATMAN, and SOCOM's TALOS efforts

Human Aspects of Operations in Military Environments

OVERVIEW

- Human Activity ISR
- Crisis Analytics for Military Operations
- Language and Socio-Cultural Training
- Models for Socially-based Threat Prediction

OBJECTIVES

- Create technologies that display knowledge of beliefs, attitudes, and norms that motivate threat behaviors in uncertain environments
- Use that knowledge to construct courses of action to achieve Commander's Intent and minimize unintended consequences
- Construct models to allow accurate forecasts of predicted events for proactive decision making

CHALLENGES

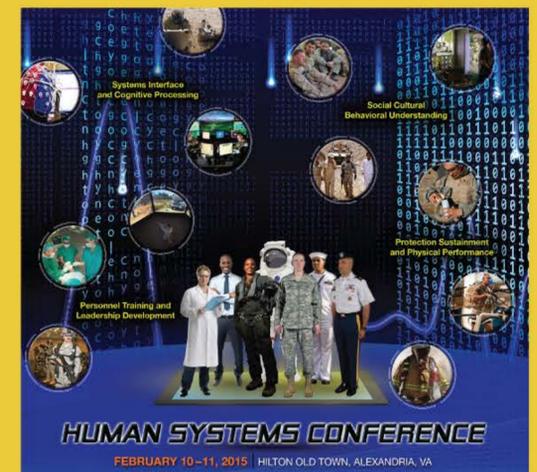
- Dynamic, unpredictable threat environments
- Uncertain variable sources of high volume / high velocity data
- Complex interpretations of social-cultural data
- Leader development

OPPORTUNITIES

- Social data streams provide real-time situation awareness
- Analytics and algorithms are maturing to exploit big, social data
- Basic research addressing social, cultural and language effectiveness
- Human ISR provide enhanced situation awareness

Engagement Opportunities

Annual NDIA Human Systems Conference



- 2nd Annual: February 2015, 100+ attendees
- 3rd Annual: Anticipated February / March 2016
- Opportunity for government / industry dialogue to exchange ideas, lessons learned, and future research and development interests

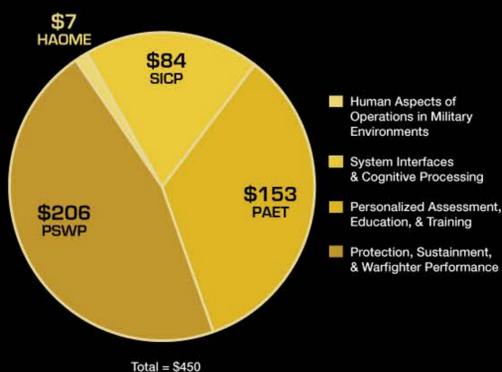
2nd Joint Human Systems IR&D Technology Interchange



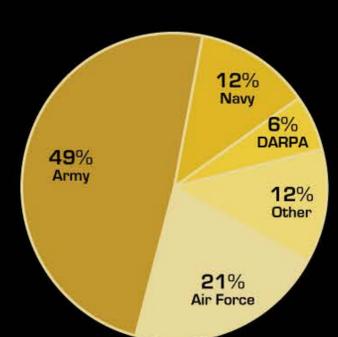
- Coming Summer 2015
- Located in the National Capital Region
- FedBizOpps Solicitation Number: AFRL-XXPD-15-0002a

Investment Profile (PBI5)

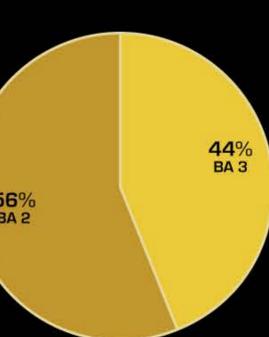
Thrust Areas (in millions)



Component Investment



Budget Activity



Key Resources



Available at www.DefenseInnovationMarketplace.mil