Meeting Theme

Human Dimension as a Starting Point

During capability development, Human Dimension (cognitive, physical, and social components) considerations are often included after the fact or sometimes not at all. This can result in severe system compromises or perhaps even failures. In this meeting we will focus on how we can identify, investigate, and share current and emerging Human Dimension developments, with the goal of more clearly relating to our partners the importance of inserting Human Dimension considerations earlier in the capabilities development process.

Background and Details:

The Army's Research Development and Engineering Command has developed a framework to understand, communicate and task organize to solve problems to prioritize Science and Technology (S&T) capability needs to achieve a balanced Soldier S&T portfolio. While this framework may currently be specific to the Army, the principles and processes involved can be applied to all warfighters, homeland defenders, space explorers, air traffic personnel, or any other groups of Humans facing complex cognitive, physical and/or social challenges.

This framework crosses a series of Technology Focus Areas (such as Lethality, Sensors and Networks) across various Integration Domains (such as C4ISR, Air, and Ground). Of specific interest to us is the Technology Focus area known as Human Dimension and Training, which is now being regarded by the Army S&T leadership as a technology area as important as traditional areas such as Lethality, Sensors, and Networks.

In this framework the Human Dimension is defined as comprising the cognitive, physical and social components of soldier, leader, organizational development and performance essential to raise, prepare and employ the Army in full spectrum operations.

Using this framework many capability needs have been identified. Among those considered the most pressing are:

- Develop Cognitive, Physical, Social Assessments Capabilities;
- Improve the Acquisition/Selection of personnel;
- Enhance Soldier readiness;
- Rapid Adjustment/Delivery of Training;
- Develop Soldiers, Leaders and Organizations;
- Agile Management and Policy

The common theme across these capability needs is that inserting Human Dimension considerations at the beginning of the process maximizes system effectiveness. As a result, this meeting will focus on work being conducted in this domain with focus on work that falls under the capability areas listed above. In addition we will discuss: current and future system design; S&T research planning; development; test/evaluation; fielding; and other capability need areas as needed.

The end result of this meeting shall be a shared structure within which to influence capability needs developers to insert human dimension considerations as early as possible, leading to faster and more efficient development of highly effective systems. Attendees will come away with a deeper understanding of the human dimension framework, work currently being conducted and work awaiting attention within the human dimension domain.
## PROGRAM SUMMARY

**Department of Defense**  
**Human Factors Engineering Technical Advisory Group**  
**Meeting 65: 2-5 May 2011 Natick, MA**

### Monday, 2 May

<table>
<thead>
<tr>
<th>Time</th>
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<tr>
<td>0830 - 1000</td>
<td>Executive Committee meeting</td>
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<tr>
<td>1000 - 1100</td>
<td>New member orientation</td>
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<tr>
<td>1130 - 1300</td>
<td>Luncheon break</td>
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<tr>
<td>1300 - 1700</td>
<td>Plenary Session</td>
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<td>1800 - 2000</td>
<td>Mixer</td>
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### Tuesday, 3 May

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<tr>
<th>Time</th>
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<tr>
<td>0730 - 0830</td>
<td>Technical Society/Industry</td>
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<tr>
<td>0830 - 1100</td>
<td>Human Performance Measurement (formerly Workload and Stress)</td>
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<tr>
<td>0830 - 1100</td>
<td>User-Computer Interaction</td>
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<tr>
<td>0830 - 1100</td>
<td>Human Factors Standardization, Part I</td>
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<td>0930 - 1000</td>
<td>Networking, coffee</td>
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<tr>
<td>1100 - 1230</td>
<td>Luncheon Break</td>
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<tr>
<td>1230 - 1430</td>
<td>Human Modeling and Simulation</td>
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<td>1230 - 1430</td>
<td>Human Factors Standardization, Part II</td>
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<td>1230 - 1430</td>
<td>HFE/HSI: Management and Applications, Part I</td>
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<td>1430 - 1500</td>
<td>Networking, coffee</td>
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<td>1500 - 1700</td>
<td>Human Factors Test and Evaluation</td>
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<td>Human Factors in Training</td>
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<td>HFE/HSI: Management and Applications, Part II</td>
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### Wednesday, 4 May

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<tr>
<td>0815 - 1230</td>
<td>Tour of Natick Labs</td>
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<td>1230 - 1330</td>
<td>Lunch</td>
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<tr>
<td>1330 - 1530</td>
<td>Design: Tools and Techniques</td>
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<tr>
<td>1330 - 1530</td>
<td>Unmanned Systems Interest Group, Part I</td>
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<td>1530 - 1700</td>
<td>Service Caucuses</td>
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<td>1830 - 2200</td>
<td>Social</td>
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### Thursday, 5 May

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<tr>
<td>0730 - 0830</td>
<td>Cognitive Readiness Interest Group</td>
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<td>0830 - 1100</td>
<td>System Safety/Health Hazards/Survivability</td>
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<td>1100 - 1230</td>
<td>Luncheon Break</td>
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<tr>
<td>1230 - 1430</td>
<td>Human Factors in Extreme Environments</td>
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<tr>
<td>1230 - 1430</td>
<td>Unmanned Systems Interest Group, Part II</td>
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<tr>
<td>1430 - 1500</td>
<td>Networking, coffee</td>
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<tr>
<td>1500 - 1700</td>
<td>Operating Board Meeting</td>
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* The Sustained/Continuous Operations, Controls and Displays, and Personnel Selection and Classification subTAGs will not meet at TAG-65.
SESSIONS

MONDAY, 2 MAY (meeting rooms are subject to change)

Executive Committee – 0830 – 1000 – East Hampton
Executive Committee members only. Others by invitation of the Chair, Dr. Pamela Savage-Knepshield

New Member Orientation – 1000 – 1100 – East Hampton

Luncheon Break – 1100 – 1300 (An American Deli lunch buffet is available in the lower café restaurant at the Crowne Plaza for $12.00 per person)

Plenary Session – 1300 – 1630 – South/West Hampton

TAG Welcome
- Dr. Pamela Savage-Knepshield
  TAG Chair
  ARL-HRED Chief, Human Factors Integration Division

Welcome to the U.S. Army Natick Soldier Research, Development and Engineering Center (NSRDEC)
- Dr. John (Jack) Obusek
  Director
  NSRDEC

Soldier Systems Integration Domain and the Human Dimension
- Ms. Dianne St. Jean
  Acting Associate Director
  NSRDEC

HSI in the Trenches: On Assignment in Iraq
- Dr. Pamela Savage-Knepshield
  TAG Chair
  ARL-HRED Chief, Human Factors Integration Division

Air Force and the Human Dimension
- Mr. Jack Blackhurst
  Director, Human Effectiveness Directorate
  711th Human Performance Wing

Navy and the Human Dimension
- LCDR Joseph Cohn, PhD
  Military Deputy
  Human and Bioengineered Systems Division Office of Naval Research

OSD HSI Perspective
- Dr. Patrick Mason, Ph.D.
  Director, Human Performance, Training, and BioSystems Research Directorate
  Office of the Assistant Secretary of Defense (R&E)

Networking/Coffee – 1440 – 1510 (subject to change based on length of presentations)

TAG Mixer – 1800 – 2000 – Hawthorne Ballroom
TUESDAY, 3 MAY (meeting rooms are subject to change)

Technical Society/Industry – 0730 – 0830 – West Hampton

All interested parties please join us in welcoming the TAG’s new OSD proponent, Dr Patrick Mason. A member of the Senior Executive Service, he leads the Human Performance, Training and BioSystems Research Directorate, Office of the Assistant Secretary of Defense (Research and Engineering). Dr Mason and Deputy Director Captain Dylan Schmorrow will hold an interactive session that will focus on:

- How the TSI SubTAG can best support the HP/T/BS Directorate
- Joint Perspective on HSI
- News from JHSIWG
- What industry needs from government to ensure HSI in acquisition programs

Human Performance Measurement – 0830 – 1100 – West Hampton

Introduction/Overview
- SubTAG Co-Chairs

Long Duration, Low Task Load Effects on Procedural Human Supervisory Control
- Kristopher Thornburg
  MIT

Subjective Multidimensional Workload Index for Distributed Teams: Development Program for the Team Subjective Assessment of Workload (T-SAW)
- Sandro Scielzo
  SA Technologies

A Network Science Analysis and Visualization of the Human-Dimension of Mission Command
- Norbou Buchler
  Army Research Lab Human Research & Engineering Directorate (Cognitive Sciences Branch)

Positive Mood & Heart Rate Variability: Their Impact on Decision Making Under Time Pressure
- Eleanor Loiacono and Dr. Soussan Djamasbi
  Worcester Polytechnic Institute

Wrap-Up & Presentations
- SubTAG Co-Chairs

User-Computer Interaction – 0830 – 1100 – South Hampton

Development of an Objective Analysis Method for Mockups: PARADIGM (Productivity Analysis & Refinement Approach to Defining Issues with GUI Mockups)
- Beth Atkinson, Research Psychologist
  Naval Air Warfare Center Training Systems Division

TacDroid: A Tactical Android System for the Battlefield Airman
- Emily Vincent
  Draper Laboratory

Development and Initial Validation of a Predictive Model of SA for Tower Controllers
- Laura Strater
  SA Technologies, Inc

Building Consensus Design with the Collaborative Story Development Kit
- Julia McHugh and Stephen Cunha
  MITRE Corporation
Human Factors Standardization, Part I – 0830 – 1100 – East Hampton

Introduction of Attendees

Status Reports
- MIL-STD-1472, Human Engineering
- MIL-STD-2525, Common Warfighting Symbology
- FAA Human Factors Design Standard
- Flight Symbology Working Group
- MIL-STD-1787, Aircraft Display Symbology
- Update of Data Item Descriptions
- Reinstating MIL-STD-46855

Presentations
ANSUR II: Anthropometric Models to Optimize the Human Systems Interface
- Claire Gordon
  US Army NSRDEC

Standards in Modeling and Simulation
- Andrew Collins
  Virginia Modeling, Analysis and Simulation Center, Old Dominion University

An Overview of the New England Chapter of the Human Factors and Ergonomics Society
- Eric Jones
  Aptima Corporation

CDRL Evaluation Tool
- Suzanne Dawes
  The Aerospace Corporation

Networking/Coffee – 0930 – 1000

Luncheon Break – 1100 – 1230 (An Italian lunch buffet is available in the lower café restaurant at the Crowne Plaza for $12.00 per person)

Human Modeling and Simulation – 1230 – 1430 – South Hampton

Medical Simulation; Mannequin Demonstration
- Charles Carey
  Gaumard Scientific

Medical Simulation; Catching Up with Aviation
- Michael A. Ricci
  Vermont Air National Guard

Algorithm Development for Predictive Modeling of Human Performance in the Presence of Environmental Stressors
- Marianne Paulsen
  Naval Air Warfare Center Training Systems Division

Biomechanical and Physiological Validation of the Omni-Directional Treadmill as a Mobility Platform for Immersive Simulations
- Kathy L. Kehring
  US Army Research Laboratory

Configurable Synthetic and Merged Environment Laboratory
- Gregory O. Gibson
  Naval Research Laboratory

Modeling and Simulation Business Meeting
Human Factors Standardization, Part II – 1230 – 1430 – East Hampton

Presentations
CDRL Evaluation Tool Demonstration
- Suzanne Dawes
  The Aerospace Corporation

A Draft Human Systems Integration Standard Document
- Bill Kosnik and Becky Singer
  711 HPW/HPO; SURVIAC/Booz Allen Hamilton

SPAWAR Human Systems Integration Policy
- Presenter TBD

Occupant Centric Survivability
- Dawn Woods
  Army NSRDEC

Impact of Acquisition Reform on Human Factors Standardization
- Alan Poston
  HFES

Other Business
- Re-publishing of the Human Engineering Design Data Digest (Pocket Guide)
- Language for MIL-HDBK-1908, Definition of Human Factors Engineering
- MIL-STD-1472 Checklist


T&E in HSI Management
- Jeffrey Thomas
  Army Test and Evaluation Command

Offshore Patrol Cutter: Integrating the Human Dimension from the Start
- Dawn M. Grey
  USCG Human Systems Integration for Acquisitions Division (CG1-B3)

HSI Throughout the Defense Acquisition Cycle: From JCIDS to Acquisition
- Lisa Kaminski and Carol Blankenship
  SURVIAC/Booz Allen Hamilton; Air Force 711 HPW

Other Business

Networking/Coffee – 1430 – 1500
Human Factors Test and Evaluation – 1500 – 1700 – South Hampton

Use of the Test and Evaluation Framework for HSI
- John Plaga and John Maziarz
  AF 711th Human Performance Wing and SURVIAC/Booz Allen Hamilton

Investigating Effects of Different Lighting Technologies on Soldier Cognition and Affective State
- Breanne Hawes
  US Army NSRDEC

The HSI Demonstration as the Capstone HFE T&E Objective
- Dennis Folds, Ph.D, and C.J. Hutto
  Georgia Tech Research Institute (GTRI)

Objectives-centric Test Planning: A Human-Centered Approach to HSI T&E
- C.J Hutto and Carrie Bell
  GTRI

Discussion: User Input in Developing a MIL-STD-1472 Checklist
- Led by Alan Poston
  HFES

Human Factors in Training – 1500 – 1700 – East Hampton

Scout or Sentinel: the Role of Relationship in Virtual Teams
- David Lamp
  JFCOM

Virtual Technologies and Training Assessment Process (VTTAP)
- John Plaga
  AFRL 711 HPW/HPO

Cognitive Readiness Trainer (CR-Trainer) for Promoting Team Effectiveness
- Cheryl A. Bolstad
  SA Technologies

Mission Briefing, Planning, and After-Action Review in Distributed Simulation
- Peter Crane
  AFRL 711 HPW/RHA

HFE/HSI: Management and Applications, Part II – 1500 – 1700 – West Hampton

Update from the Technical Society/Industry subTAG
- Steve Merriman
  Boeing

Applying HSI to Enterprise Architecture Development: A Discussion
- Glen Hewitt
  Federal Aviation Administration
WEDNESDAY, 4 MAY (meeting rooms are subject to change)

Tour of the Natick Labs – 0815 – 1230
- Meet in the hotel lobby to begin boarding the bus at 0815, and depart at 0830 SHARP.
- Please bring government issued photo ID as proof of citizenship and wear comfortable shoes. NO cameras are allowed.
- If you have NOT pre-registered for the tour you will NOT be allowed to board the bus. Please confirm with the registration desk or the list on the bulletin board that you are confirmed.
- This tour can accommodate a maximum of 45 people.

The tour will include multiple venues within the Natick Soldier Research Development and Engineering Center and the Soldier Systems Center. Of specific interest to many TAG attendees will be the 3-D Anthropometric Scanner used to model the warfighter and his/her equipment in 3 dimensions; The Doriot Climatic Chambers and their use in research about the physiology of the U.S Soldier; and finally, a look inside the Pilot Plant where new recipes for warfighter feeding are developed and the Navy Lab where Navy Galleys of the future are designed - there may even be an opportunity to sample warfighter foods! Other venues may be included as available.

You will be split up into four groups for this tour. You will receive a color group assignment as you board the bus.

Luncheon Break – 1230 – 1330 (An Mexican lunch buffet is available in the lower café restaurant at the Crowne Plaza for $12.00 per person)

Design: Tools and Techniques – 1330 – 1530 – South Hampton

Human Systems Research in NASA's Aviation Safety Program
- Michael Feary
  NASA – Ames Research Center

Human Modeling in System Development: History, Status and Future
- Stephen Merriman
  Boeing

Business Meeting
- Review Charter, Emerging Topics, Current Interests

Unmanned Systems Interest Group, Part I – 1330 – 1530 – West Hampton

Setup/Welcome

Workload Analysis for the Control of Multiple Remotely Piloted Aircraft
- Michael Miller
  Air Force Institute of Technology

UAS GBSAA Collaborative Experiment: Final Report
- Jill Drury
  The MITRE Corporation

Unmanned Systems Business Meeting
- Ajoy Muralidhar
  Unmanned Systems Group Chair

Session Wrap Up
Technical Society/Industry – 1530 – 1700 – West Hampton
Theme: Advances in Contract Language to Support HSI in Acquisition
- Steve Merriman, Boeing
- Lisa Kaminski, SURVIAC/Booz Allen Hamilton

Army Caucus – 1530 – 1700 – South Hampton

Air Force Caucus – 1530 – 1700 – North Hampton

Navy Caucus – 1530 – 1700 – East Hampton

NASA – 1530 – 1700 – TBD

DHS Caucus – 1530 – 1700 – Harvard Boardroom

Social – 1830 – 2200
Our social event will be at the Wayside Inn on Wednesday evening, 4 May 2011 starting at 1800. Please meet in the lobby of the Crowne Plaza no later than 1800 to board the charter bus. The cost is $50.00/per person, and cash only is accepted on site. Please be sure to register on our website under the social tab if you are attending and any additional folks you would like to join us.

Longfellow's Wayside Inn—a nationally significant Massachusetts Historic Landmark—is the oldest Inn still operating in the United States and has been serving travelers along the old Boston Post Road for almost 300 years. What began as a two-room home in 1707, the Howe family ran a successful tavern and innkeeping business on this site from 1716 to 1861. They offer outdoor sites, a gift shop and we will be dining in their ballroom. Please visit www.wayside.org for more information on Wayside Inn.
**Cognitive Readiness Interest Group** – 0730 – 0830 – Harvard Boardroom
**THIS SESSION IS BY INVITATION OF THE CHAIR, KATRINA MAY, ONLY**

Welcome & Sign-in
- Katrina A. May
  ARL-HRED

Progressing From Phase I to Phase II:
- CAPT Dylan Schmorrow
  OSD, Human Performance, Training and BioSystems

HSBC & COGR PHASE I SBIR Updates

**System Safety/Health Hazards/Survivability** – 0830 – 1100 – West Hampton

Analyzing Human Factors Information from Soldier Autopsies to Improve Protective Equipment
- Dori Franco
  Medical Examiner for the Armed Forces Institute of Pathology (AFIP)

Current Efforts Using AFIP and Other Information to Design Future Combat Vehicles to Enhance Survivability
- Dawn Woods
  Human Factors Engineer, NSRDEC, Acting Lead, Soldier Domain Integrated Product Team (IPT) Occupant Centric Survivability

SubTAG Business
- Nominations and selection of new Chair and Co-Chair for System Safety/Health Hazards/Survivability

**Networking, coffee** – 0930 – 1000

**Luncheon Break** – 1100 – 1230 (An Asian lunch buffet is available in the lower café restaurant at the Crowne Plaza for $12.00 per person)

**Human Factors in Extreme Environments** – 1230 – 1430 – South Hampton

Setup and Welcome

A Comparison of Near Infrared and Shortwave Infrared in a Low-Light Level Environment
- LT Brian R. Johnson
  Naval Air Warfare Center Aircraft Division

The Effect of Chemical Protective Clothing, Benadryl, and Exercise on Cognition, Mood, and Physiology
- Diane Williams
  Naval Health Research Center

Applicability of HFE in Extreme Environments to Current Events (e.g., Chilean Miners’ Accident, Recent Events in Japan)
- Sub-TAG Team, Moderated Discussion

Closing Comments / Session Wrap Up
Unmanned Systems Interest Group, Part II – 1230 – 1430 – West Hampton

Setup and Welcome

Supervisory Control Of Robots Using Roboleader: Effects Of Automation Reliability And Individual Differences
  • Jessie Chen
    U.S. Army Research Laboratory,

Demonstrating Human Supervisory Control Of A Micro Aerial Vehicle In An Outdoor Environment
  • Kim Jackson
    Massachusetts Institute of Technology

Relevance Of Task Switching, Incongruence, And Task Type To Adaptive Automation
  • Lauren Reinerman-Jones
    University of Central Florida (UCF),

Closing Comments / Session Wrap Up

Networking, coffee – 1430 – 1500

Operating Board – 1500 – 1700 – South Hampton

Adjourn – 1500
## EXECUTIVE COMMITTEE

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Phone Number</th>
<th>Email Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair (Army)</td>
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## SUBTAG CHAIRS

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<th>Chair</th>
<th>Phone Number</th>
<th>Email Address</th>
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<tr>
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<td>Management and Applications</td>
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Map of the Crowne Plaza – Natick
Meeting Space