

GSAW Workshop – Human Systems Integration (HSI): Tools, Techniques and Challenges Ahead



NORTHROP GRUMMAN

Images courtesy of
United States Air Force

Workshop Background

- ***In recent years, there has been a resurgence of interest in Human Systems Integration.***
- ***As a result of the United States Air Force (USAF) Scientific Advisory Board in 2004, updates to the National Security Space (NSS) Acquisition Policy and a recent SMC policy letter on Human Systems Integration (2006), there is an interest and need for development of tools and techniques that can be used in the development of operational systems that support the skill, knowledge and abilities of operators, maintainers and users.***
- ***Integration of users across system lifecycle represents 40-60% of lifecycle costs.***

Workshop Background (cont'd)

- ***Space systems acquisitions have inherent human systems integration challenges: increasing information demands on operators, requirements for operators to perform jobs in new/different ways, continuing pressure to reduce manpower and a desire to limit the exposure of personnel to threats.***
- ***This workshop will address how and where HSI can help in systems development, and will include a mix of presentations and panel discussions from a variety of viewpoints.***

Workshop Agenda

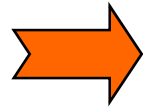
- 1:00 – 1:15 Welcome and Introduction
- 1:15 – 2:30 Papers and Discussion
 - *Try Before You Buy?! How to get users to buy off on your “yet to be developed” system*
 - Suzanne M. Dawes, Stephanie L. Heers, Tanisha Church, Jesus L. Rivera, Steven Lazar, Paul DeNaray, The Aerospace Corporation
 - *Strategies for Communicating Human Systems Integration Findings?*
 - Janeen Sharma Northrop Grumman Corporation
 - *The development of a matrix to assess the completeness and robustness of human systems integration products*
 - Stephanie L. Heers, Stacey L. Schwartz, The Aerospace Corporation

Workshop Agenda (cont'd)

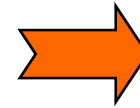
- 2:45 – 5:00 Panel Discussion: Views from participants involved in designing for humans
- This panel will provide insight into various roles, responsibilities and challenges in addressing human error, automation and human performance in the acquisition and development of systems.
- Organizations represented include:
 - *Mr. Norman Goyette, Project Engineer Senior, System Test Support, Space Based Surveillance Division, The Aerospace Corporation*
 - *Ms. Janeen Sharma, Human Factors Engineer, Northrop-Grumman Corporation*
 - *Mr. Jeff Holmes, Associate Director, Ground Systems Infrastructure Development Department, The Aerospace Corporation*
 - *Ms. Roberta Gleiter, Engineering Specialist, Software Architecture & Engineering, Engineering & Technology Group, The Aerospace Corporation*
 - *Major Veronica Harris, Program Manager, GPS Next Generation Control Segment, Phase A, USAF GPS OCX Program Office*
 - *Capt. Walter Miller, Chief, Warfighter Ops, USAF*

What are we trying to accomplish?

Can these warfighters?



With this training?



Using this equipment?



Accomplish their mission?

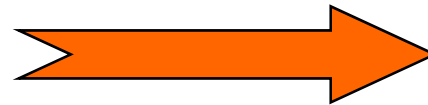


Under these conditions?

TIME PRESSURE



24/7 ops



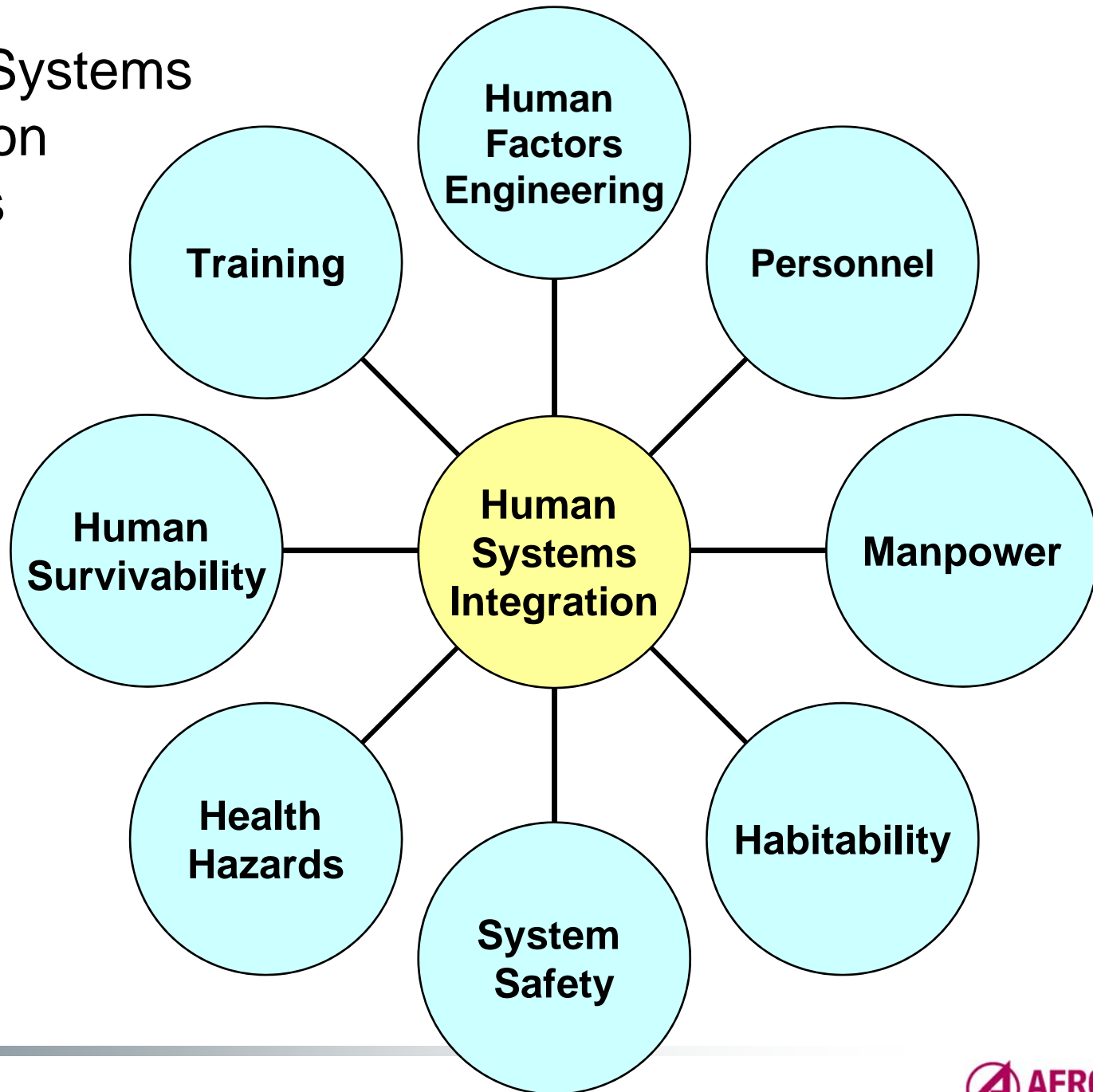
STRESS



Weather



Human Systems Integration Domains



Why should we all care?

- Integration of users across system lifecycle currently accounts for 40-60% of total system costs
- Human Systems Integration deficiencies
 - *Significantly contributed to most large-scale technological accidents - Bhopal, Chernobyl and Three Mile Island accidents.*
 - *Identified as a causal factor in 60-80% of aviation accidents*
- Addressing Human Systems Integration
 - *Reduces operator workload, human error and potential equipment damage/human injury*
 - *Reduces delays in getting systems operational*
 - *Reduces long-term sustainment costs*
 - *Increases the ability of personnel to effectively operate, maintain and support complex systems*
 - *Increases ability to achieve mission success*

To Sum it Up

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Golly-gee-whiz technology is great, however...

If the human can't operate it, maintain it, and support it, it's no good.

Remember the warfighter!!!!