Session Goals

• Space systems acquisitions have inherent Human Systems Integration challenges:
  – increasing information demands on operators,
  – requirements for operators to perform jobs in new/different ways, and
  – continuing pressure to reduce manpower.

• Workshop addressed how and where HSI should be involved in systems development.

• Presentations and panel discussions used to explore HSI from a variety of viewpoints.
• 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
Panelists

- Major Veronica Harris, Program Manager, GPS Next Generation Control Segment, Phase A, USAF GPS OCX Program Office
- Ms. Janeen Sharma, Human Factors Engineer, Northrop-Grumman Corporation
- Mr. Norman Goyette, Project Engineer Senior, System Test Support, Space Based Surveillance Division, The Aerospace 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
- Capt. Walter Miller, Chief, Warfighter Ops, GPS Next Generation Control Segment, Phase A, USAF GPS OCX Program Office
“Consideration of operators [is] too little and too late within [the] development process” (Dr. Sandra Steere, CNES)

As a community we are starting to address the user requirements earlier in the acquisition.

Operator Involvement Days

– Tension between contractor desire for interaction vs. real-world job requirements of the operations community.
– Challenge to keep “requirements creep” under control. This is not a “shopping spree”.
– Requirement for acquiring agency to provide the guidance for a controlled and structured approach for user (operator, maintainer, support, stakeholder) interaction with developing organization.
• Human factors engineers often asked to join programs at the end of the program – asked to perform “Human Factors Magic”.

• From a contractor perspective, the high turnover in stakeholders remains an ongoing challenge.

• Often times there are workarounds of workarounds, they build up and become a major challenge.

• Automation is a double-edged sword, it has eliminated some sources of error but introduced new sources.
  – Trust in automation and situation awareness must be addressed.
Conclusions

- Commitment from leadership is essential to HSI success.
- HSI is a team sport.
- Identify key insertion points within the process.
- Include the appropriate requirements, data items, specifications on contract from the beginning.
- Continue to develop tools that show HSI progress to the operations community and management.
- Need additional focus on providing clear, unambiguous, testable requirements.